1986 ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

Single Detached Dwelling
24 Unit
Walk-up Apartment

Alberta
MUNICIPAL AFFAIRS

1986 ALBERTA HOUSE COST COMPARISON STUDY

Executive Summary

NOVEMBER 1986

Prepared by:

Jubilee Consultants
3723 - 63 Street
Edmonton,Alberta
T6L 1R1

Prepared for:

ALBERTA MUNICIPAL AFFAIRS
Financial Assistance and Research Branch
10050 - 112 Street
Edmonton, Alberta
T5K 2J1

ISSN 0822-3920

TABLE OF CONTENTS

Page No.

PREFACE....1

1.0 INTRODUCTION....2
- 1.1 Objectives....3
- 1.2 Scope of Work....3
- 1.3 Approach....5
- 1.4 Findings....7

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING....9
- SD.1 Total Building Costs....10
- SD.2 Comparative Cost Ratios....11
- SD.3 Comparative Cost Table 1985-1986....12
- SD.4 Comparative Building Cost Bar Chart 1985-1986....13
- SD.5 Comparative Total Building Costs 1979-1986....14
- SD.6 Comparative Cost per Square Foot of Gross Floor Area 1979-1986....15
- SD.7 Comparative Total Building Cost Graphs 1979-1986....16
- SD.8 Comparative Total Building Costs 1979-1986, Inflation Adjusted Dollars....17
- SD.9 Comparative Total Building Cost Graphs 1979-1986, Inflation Adjusted Dollars..18
- SD.10 Trade Division Cost Summaries....19

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT....21
- WA.1 Total Building Costs....22
- WA.2 Comparative Cost Ratios....23
- WA.3 Comparative Cost Tables 1985-1986....24
- WA.4 Comparative Building Cost Bar Chart 1985-1986....25
- WA.5 Comparative Total Building Costs 1980-1986....26
- WA.6 Comparative Cost per Square Foot of Gross Floor Area 1980-1986....27
- WA.7 Comparative Cost per Apartment Unit 1980-1986....28
- WA.8 Comparative Apartment Unit Cost Graphs 1980-1986....29
- WA.9 Comparative Cost per Apartment Unit 1980-1986, Inflation Adjusted Dollars....30
- WA.10 Comparative Apartment Unit Cost Graphs 1980-1986, Inflation Adjusted Dollars..31
- WA.11 Trade Division Cost Summaries....32

APPENDIX
- A) Reduced Drawings: Single-Detached Dwelling
- B) Reduced Drawings: Walk-Up Apartment
- C) Changes from 1985 Alberta House Cost Comparison Study

PREFACE

The main purpose of the 1986 Alberta House Cost Comparison Study is to provide estimates of the hard construction costs of a prototypical single-detached dwelling and a 24-unit walk-up apartment in nine urban centres in this Province.

The study also compares 1986 residential construction costs with those of previous years in the selected urban centres. Most emphasis is given to a comparison of 1986 with 1985 costs and the study includes an analysis of these differences.

Alberta Municipal Affairs has commissioned this year's study while similar studies for the previous seven years were commissioned by the Alberta Department of Housing. The 1986 study has been carried out by Jubilee Consultants and is documented in three reports:

1986 Alberta House Cost Comparison Study: Executive Summary
1986 Alberta House Cost Comparison Study: Single-Detached Dwelling
1986 Alberta House Cost Comparison Study: Walk-Up Apartment

Additional copies of any of these reports can be ordered from:

ALBERTA MUNICIPAL AFFAIRS
Financial Assistance and Research Branch
10050 - 112 Street
Edmonton, Alberta
T5K 2J1

1.0 INTRODUCTION

1.0 INTRODUCTION

1.1 Objectives

The objectives of the 1986 Alberta House Cost Comparison Study are as follows:

1. To determine 1986 hard residential construction costs in selected urban centres in Alberta.
2. To determine reasons for differences in residential construction costs in the selected centres.
3. To carry out detailed comparisons of 1986 residential construction costs with 1985 residential construction costs in the selected centres.
4. To determine and comment on residential construction cost trends over the last eight years in the selected centres.

1.2 Scope of Work

The 1986 Alberta House Cost Comparison Study examines the construction costs of a typical single-detached dwelling and a twenty-four unit walk-up apartment building.

The study has been documented in three reports: an Executive Summary, a report on a typical single-detached dwelling and a report on a walk-up apartment. This report is the Executive Summary.

The study examines building construction costs in the following centres:

1. Edmonton
2. Calgary
3. Red Deer
4. Fort McMurray
5. Grande Prairie
6. Hinton
7. Lethbridge
8. Medicine Hat
9. Lloydminster

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost analysis for both the single-detached dwelling and the walk-up apartment examine the building construction cost differences between each of the centres and highlights the reasons for those differences with reference to such factors as:

a) material costs,
b) labour costs, and
c) building features and inclusions.

The cost estimates of the single-detached dwelling for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications, and site overhead. The estimates exclude the following items:

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses,
f) marketing and real estate financing costs,
g) appliances: (fridge and stove), and
h) general contractor's overhead and profit.

1.0 INTRODUCTION

1.2 Scope of Work (continued)

The cost estimates of the walk-up apartment for each centre include all structural, finishing, mechanical and electrical work as shown on the drawings and included in the specifications, site overhead and contractor's overhead and profit. The cost estimates exclude the following items:

a) cost of land and site clearance,
b) site servicing costs,
c) site development costs,
d) design fees and expenses,
e) legal fees and expenses, and
f) marketing and real estate financing costs.

1.3 Approach

The building construction costs are detailed in the report under the headings of labour and material/equipment costs. Labour rates used in the report are either those established by the trade union concerned, or by the market where trade union rates do not apply. In most cases, a realistic assessment of labour rates has been established by examining the circumstances of the particular sub-trade within the building industry. Material prices have been evaluated from building materials supplier's lists. Average discounts are applied in order to establish a realistic market price for the materials to contractors.

1.0 INTRODUCTION

1.3 Approach (continued)

The cost data are assembled by sub-trade and presented in 22 trade categories for the single-detached dwelling and 25 trade categories for the walk-up apartment. The sub-trade operations are combined within each trade category in order to reflect current estimating practice within the industry. Site overhead and general contractor's office overhead and profit are shown separately for the walk-up apartment to indicate the actual site costs.

A computer program was developed in order to collate and present the cost data which were assembled for the nine centres. The quantities and trade descriptions were initially established for the prototypical house and apartment building. The cost data applicable to the relevant quantities and trade descriptions for each centre were then processed by computer.

The cost effects of market forces and building industry conditions are addressed in the 'Findings' section of this report.

1.0 INTRODUCTION

1.4 Findings

Alberta's economy is experiencing a very slow growth due to the difficulties being experienced in the agricultural and oil and gas sectors. Unemployment is up somewhat but average interest rates are down compared to last year. The impact of these economic forces vary from centre to centre. There were significant drops in new housing starts in some centres and no increase in housing starts in others. The overall impact for the Province is a moderate decline in new housing starts and a small increase in the cost of residential construction by an average of 4.2% in 1986.

Costs for the prototypical single-detached house have increased by an average of 3.9% province-wide. The greatest increase was 5.1% in Grande Prairie and the lowest increase was 1.9% in Lloydminster.

Costs for apartment construction have increased in all centres by an average of 4.5%. The greatest increase was 6.8% in Grande Prairie and the smallest increase was 2.3% in Lloydminster.

The graphic presentation of construction costs of the single-detached dwelling in Table SD.7 indicates that construction costs in most of the centres are close to those in 1981 in nominal dollars. (From an average 1981 cost of $42,304 to an average 1986 cost of $42,122 or 0.4% less). However, expressed in terms of inflation adjusted 1986 dollars, costs have fallen dramatically from $53,838 to $42,122, a 21.8% drop.

The graphic presentation of apartment construction costs in Table WA.9 indicates that average costs are still less than 1981 costs expressed in nominal dollars (from $31,529 in 1981 to $29,165 in 1986, or 7.5% less). Expressed in inflation adjusted 1986 dollars, the total average costs are 27.3% less than the 1981 costs (i.e., from $40,125 in 1981 to $29,165 in 1986).

1.0 INTRODUCTION

1.4 Findings (continued)

Labour costs for single-detached dwelling and the walk-up apartment building increased slightly in some centres, while Edmonton, Red Deer, Medicine Hat and Lloydminster had slight decreases.

Material prices for single-detached dwelling and the walk-up apartment building have increased in all centres, notably lumber and insulation which have increased significantly over the last year. Most materials have increased in price due to the federal sales tax increase from 6% to 8%. Concrete prices vary considerably from centre to centre, due to demand, location and availability of aggregates and cement. In 1986, prices for 20 MPA concrete is varied from $70.00 per m3 in Lethbridge to $125.50 per m3 in Fort McMurray. In some centres concrete prices have gone down, probably due to increased competition brought on by a decrease in demand.

Costs for other materials such as window, roof trusses, doors, fittings etc. have also increased substantially, probably due to the strong demand caused by buoyant housing markets in other parts of the country and the increase in federal tax.

No significant changes were observed as a result of building practice changes, non-availability of materials or changes in standard materials used by the majority of builders. Changes made in the 1986 study as a result of updating plans are included in the appendix.

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

2.0 SUMMARY OF FINDINGS FOR THE SINGLE-DETACHED DWELLING

TABLE SD. 1 : Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYD-MINSTER	
ELEMENT	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%
Labour	9,782	25.2	9,713	25.2	10,347	26.0	13,460	28.2	12,156	27.0	12,719	29.0	11,063	27.1	10,740	26.2	11,624	26.7
Material *	29,014	74.8	28,903	74.8	29,482	74.0	34,313	71.8	32,791	73.0	31,157	71.0	29,703	72.9	30,207	73.8	31,921	73.3
Total 1986	38,797	100.0	38,616	100.0	39,829	100.0	47,773	100.0	44,948	100.0	43,876	100.0	40,766	100.0	40,947	100.0	43,546	100.0
Cost per m2	$387.97		$386.16		$398.29		$477.73		$449.48		$438.76		$407.66		$409.47		$435.46	
Cost per SF	$36.04		$35.88		$37.00		$44.38		$41.76		$40.76		$37.87		$38.04		$40.46	
Total 1985	$37,269		$37,341		$38,377		$45,564		$42,785		$41,660		$39,485		$39,521		$42,749	
Changes From 1985	4.1%		3.4%		3.8%		4.8%		5.1%		5.3%		3.2%		3.6%		1.9%	

NOTES: * Material cost includes 38 x 140mm (2x6) exterior wall

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD. 2 : Comparative Cost Ratios *

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
EDMONTON	1.00	1.00	1.03	1.23	1.16	1.13	1.05	1.06	1.12
CALGARY	1.00	1.00	1.03	1.24	1.16	1.14	1.06	1.06	1.13
RED DEER	0.97	0.97	1.00	1.20	1.13	1.10	1.02	1.03	1.09
FORT McMURRAY	0.81	0.81	0.83	1.00	0.94	0.92	0.85	0.86	0.91
GRANDE PRAIRIE	0.86	0.86	0.89	1.06	1.00	0.98	0.91	0.91	0.97
HINTON	0.88	0.88	0.91	1.09	1.02	1.00	0.93	0.93	0.99
LETHBRIDGE	0.95	0.95	0.98	1.17	1.10	1.08	1.00	1.00	1.07
MEDICINE HAT	0.95	0.94	0.97	1.17	1.10	1.07	1.00	1.00	1.06
LLOYD-MINSTER	0.89	0.89	0.91	1.10	1.03	1.01	0.94	0.94	1.00

* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column.For example, Red Deer costs are 1.03 times Edmonton costs.

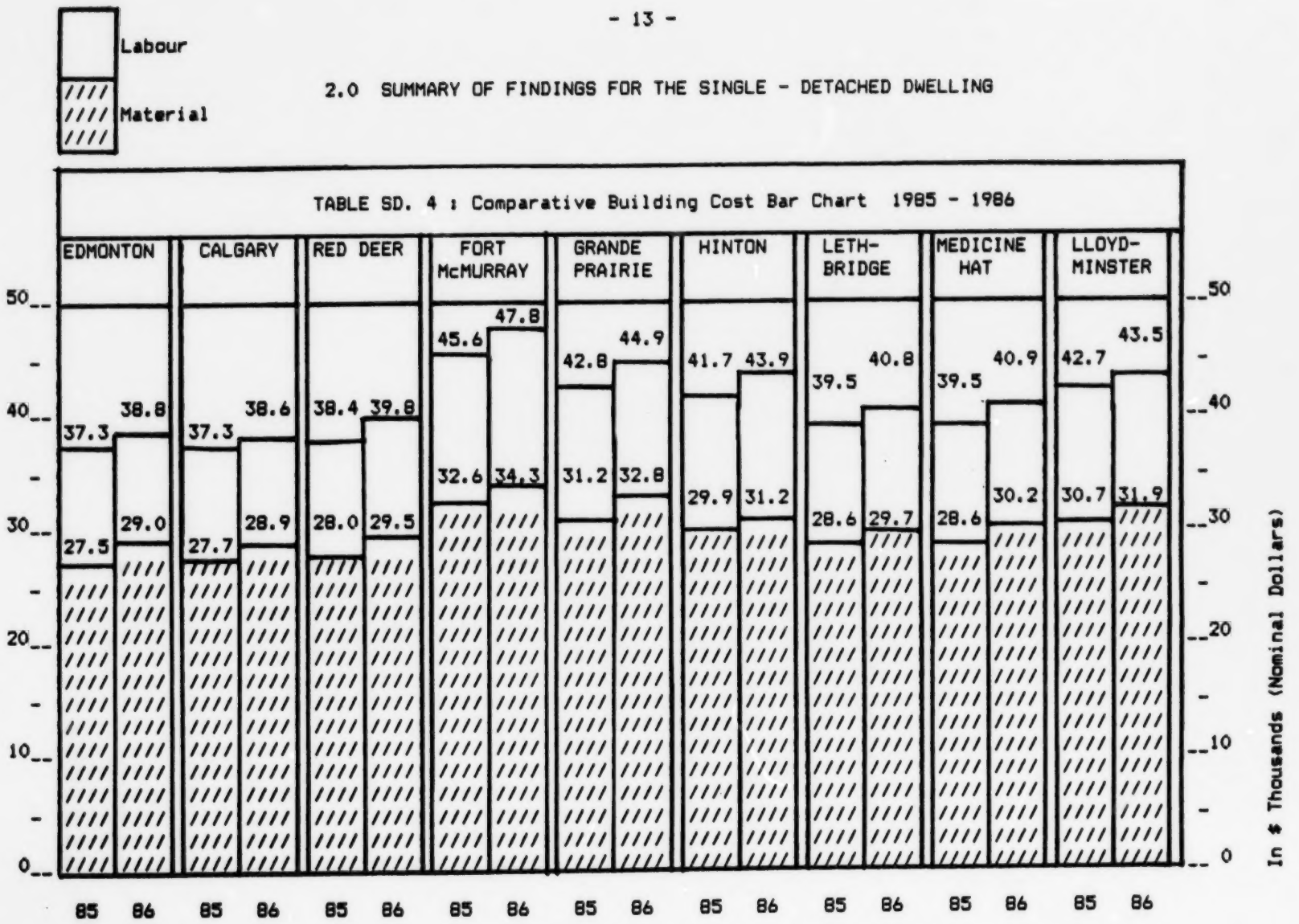
2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD. 3 : Comparative Cost Table 1985 - 1986

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Labour Cost									
1986	$9,782	$9,713	$10,347	$13,460	$12,156	$12,719	$11,063	$10,740	$11,624
1985	$9,798	$9,594	$10,385	$12,991	$11,563	$11,764	$10,876	$10,886	$12,008
Difference	($16)	$119	($38)	$469	$593	$955	$187	($146)	($384)
% Difference	-0.2%	1.2%	-0.4%	3.6%	5.1%	8.1%	1.7%	-1.3%	-3.2%
Mat'l. Cost*									
1986	$29,014	$28,903	$29,482	$34,313	$32,791	$31,157	$29,703	$30,207	$31,921
1985	$27,471	$27,747	$27,991	$32,573	$31,222	$29,896	$28,610	$28,635	$30,741
Difference	$1,543	$1,156	$1,491	$1,740	$1,569	$1,261	$1,093	$1,572	$1,180
% Difference	5.6%	4.2%	5.3%	5.3%	5.0%	4.2%	3.8%	5.5%	3.8%
Total Cost									
1986	$38,797	$38,616	$39,829	$47,773	$44,948	$43,876	$40,766	$40,947	$43,546
1985	$37,269	$37,341	$38,377	$45,564	$42,785	$41,660	$39,485	$39,521	$42,749
Difference	$1,528	$1,275	$1,452	$2,209	$2,163	$2,216	$1,281	$1,426	$797
% Difference	4.1%	3.4%	3.8%	4.8%	5.1%	5.3%	3.2%	3.6%	1.9%

NOTE : * Material cost includes 38 x 140mm exterior wall

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING



2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD. 5 : Comparative Total Building Costs 1979 - 1986 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1979	$32,057	$29,545	$28,810	$31,431	$37,364	$34,348	-	$30,651	$32,249	-
1980	$38,991	$36,239	$34,964	$37,206	$45,747	$42,143	-	$38,055	$38,586	-
1981	$42,304	$39,925	$39,578	$40,159	$48,339	$44,655	-	$41,910	$41,561	-
1982	$41,029	$37,732	$36,894	$40,432	$46,257	$40,814	$42,453	$41,546	$42,102	-
1983	$38,565	$35,723	$34,953	$36,941	$43,021	$40,449	$39,676	$38,427	$39,326	-
1984	$39,757	$35,764	$35,529	$36,540	$45,129	$42,601	$41,421	$38,733	$39,743	$42,351
1985	$40,528	$37,269	$37,341	$38,377	$45,564	$42,785	$41,660	$39,485	$39,521	$42,749
1986	$42,122	$38,797	$38,616	$39,829	$47,773	$44,948	$43,876	$40,766	$40,947	$43,546

NOTES : * Expressed in nominal dollars
** Hinton was not included in the 1979, 1980 and 1981 studies
*** Lloydminster was not included in the 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

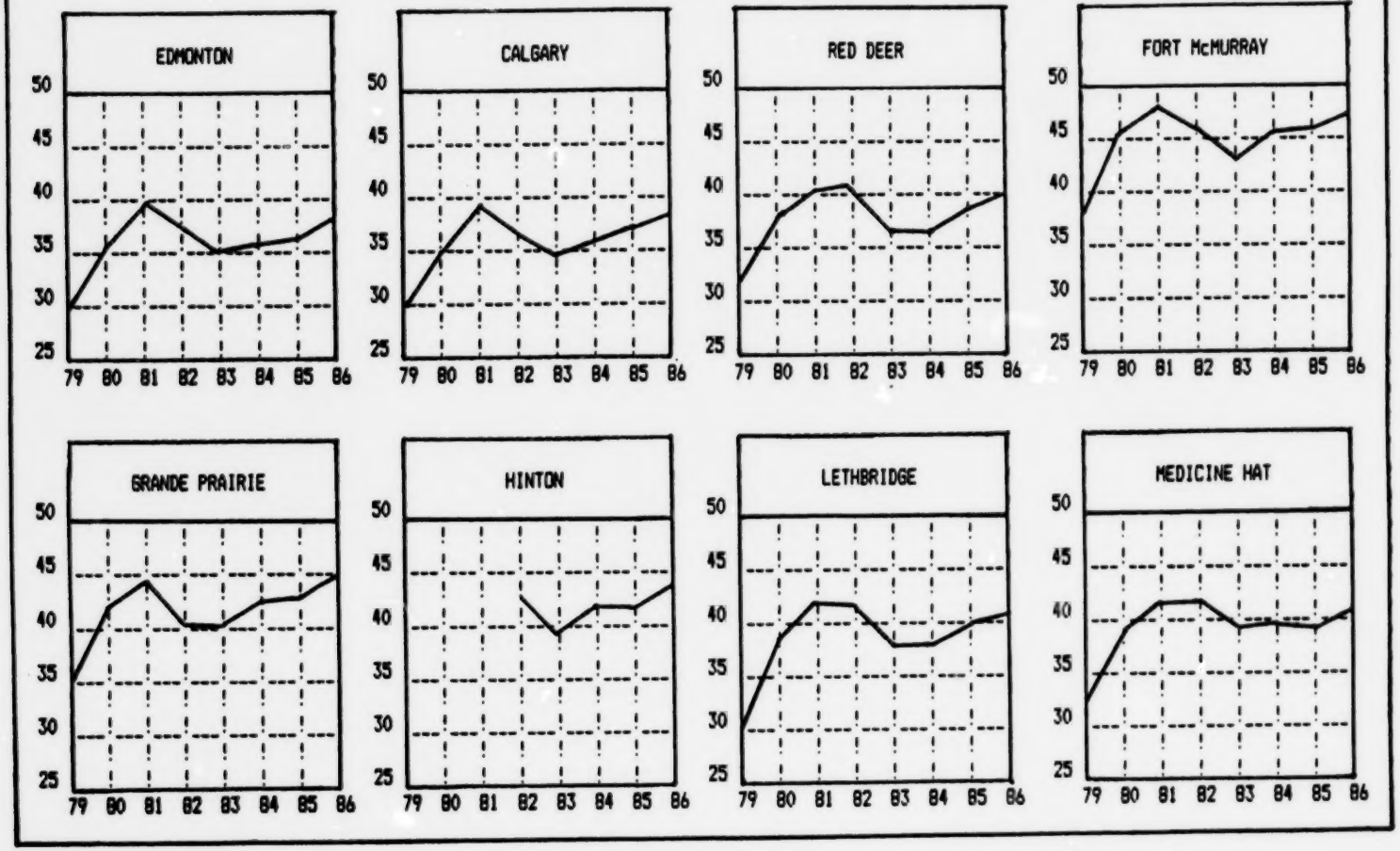
Table SD. 6 : Comparative Cost per Square Foot of Gross Floor Area 1979 - 1986 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1979	$29.78	$27.45	$26.76	$29.20	$34.71	$31.91	-	$28.47	$29.96	-
1980	$36.22	$33.66	$32.48	$34.56	$42.50	$39.15	-	$35.35	$35.85	-
1981	$39.30	$37.09	$36.77	$37.30	$44.91	$41.48	-	$38.93	$38.61	-
1982	$38.10	$35.05	$34.27	$37.56	$42.97	$37.82	$39.44	$38.60	$39.11	-
1983	$35.83	$33.19	$32.47	$34.32	$39.97	$37.58	$36.86	$35.70	$36.53	-
1984	$36.95	$33.24	$33.02	$33.96	$41.94	$39.59	$38.50	$36.00	$36.94	$39.36
1985	$37.65	$34.62	$34.69	$35.65	$42.33	$39.75	$38.70	$36.68	$36.72	$39.71
1986	$39.13	$36.04	$35.88	$37.00	$44.38	$41.76	$40.76	$37.87	$38.04	$40.46

NOTES : * Expressed in nominal dollars
** Hinton was not included in the 1979, 1980 and 1981 studies
*** Lloydminster was not included in the 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

TABLE SD. 7 : Comparative Total Building Cost Graphs 1979 - 1986



2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

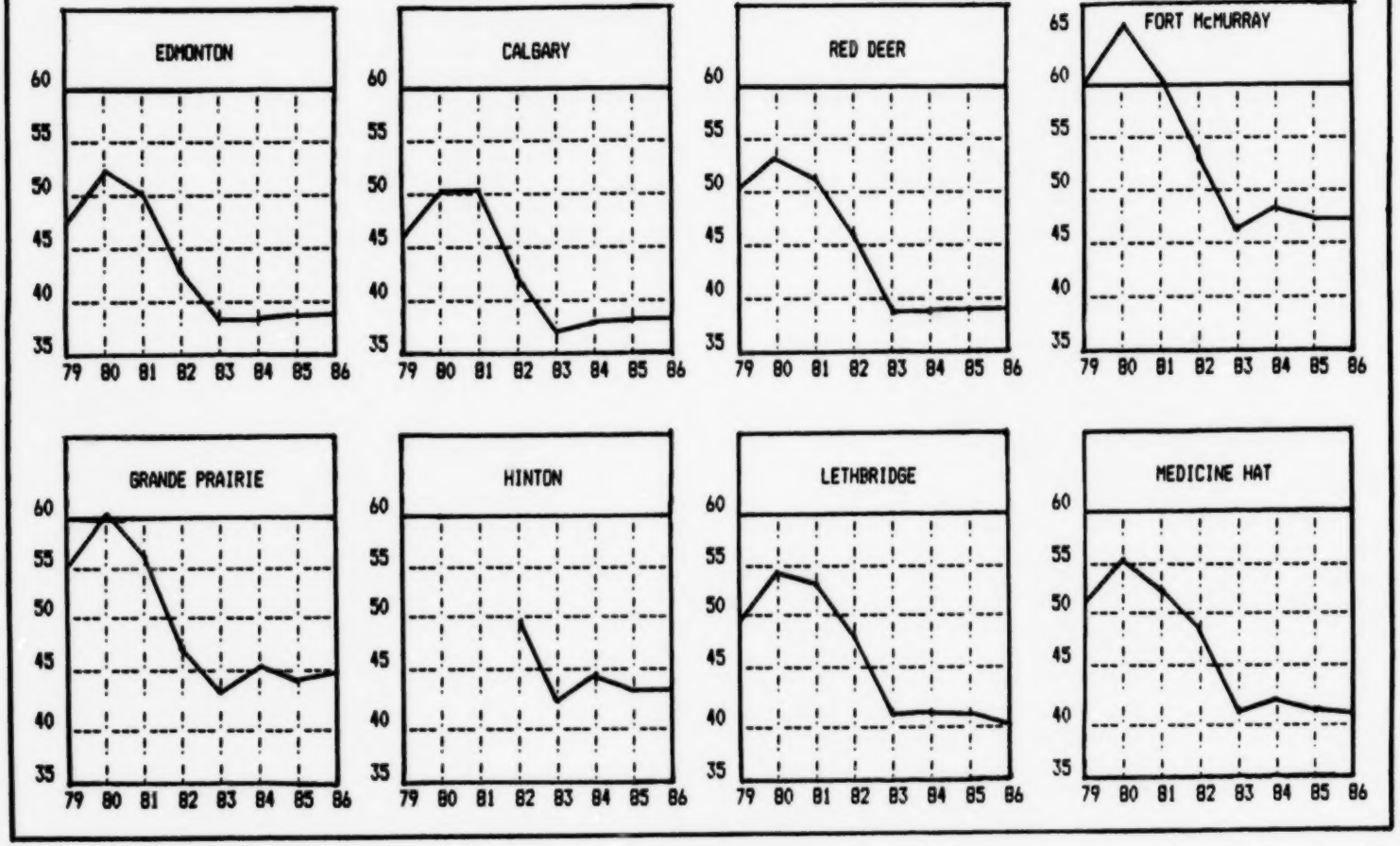
Table SD .8 : Comparative Total Building Costs 1979 - 1986, Inflation Adjusted Dollars *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1979	$51,490	$47,456	$46,275	$50,485	$60,014	$55,170	-	$49,232	$51,799	-
1980	$56,204	$52,237	$50,400	$53,631	$65,943	$60,748	-	$54,855	$55,621	-
1981	$53,838	$50,810	$50,368	$51,108	$61,518	$56,830	-	$53,336	$52,892	-
1982	$47,282	$43,483	$42,517	$46,594	$53,307	$47,034	$48,923	$47,878	$48,519	-
1983	$41,176	$38,142	$37,320	$39,442	$45,934	$43,188	$42,363	$41,029	$41,989	-
1984	$42,449	$38,186	$37,935	$39,014	$48,185	$45,486	$44,226	$41,356	$42,434	$45,219
1985	$42,090	$38,706	$38,781	$39,857	$47,321	$44,435	$43,266	$41,007	$41,045	$44,397
1986	$42,122	$38,797	$38,616	$39,829	$47,773	$44,948	$43,876	$40,766	$40,947	$43,546

NOTES : * 1. Expressed in 1986 Inflation adjusted dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton as published by Statistics Canada
** Hinton was not included in the 1979, 1980 and 1981 studies
*** Lloydminster was not included in 1979 through 1983 studies

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

TABLE SD. 9: Comparative Total Building Cost Graph 1979 - 1986 - Inflation Adjusted Dollars



2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD.10 : Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT MCMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
1. Excavation	788	1,052	811	1,164	954	891	1,073	866	1,094
2. Concrete	5,036	4,975	5,150	6,770	6,532	6,529	4,675	5,487	5,547
3. Damproofing	331	318	406	555	528	431	436	393	403
4. Siding	2,373	2,037	2,604	2,977	2,751	2,531	2,581	2,285	2,773
5. Roofing	992	971	1,013	1,077	1,077	1,008	1,065	1,090	985
6. Carpentry - Rough	8,171	8,149	8,063	9,729	8,884	8,494	8,547	7,900	8,174
7. Carpentry - Finish	722	724	726	842	821	743	752	747	781
8. Windows and Glazing	1,714	1,723	1,757	1,828	1,822	1,772	1,770	1,770	1,793
9. Sealants	52	52	52	57	57	55	52	52	56
10. Doors	1,019	980	1,025	1,150	1,146	1,140	1,060	1,028	1,128
11. Hardware	178	178	178	192	192	184	181	181	187
SUB - TOTAL	$21,376	$21,159	$21,785	$26,341	$24,764	$23,778	$22,192	$21,799	$22,921

2.0 SUMMARY OF FINDINGS FOR THE SINGLE - DETACHED DWELLING

Table SD.10 : Trade Division Cost Summaries (cont'd)

LOCATION	EDMONTON	CALGARY	RED DEER	FORT MCMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
12. Ceramic Tiling	182	177	187	220	215	206	210	215	262
13. Wallboard	3,738	3,693	3,743	4,901	4,239	4,370	3,903	3,954	4,837
14. Flooring	1,346	1,343	1,388	1,556	1,513	1,468	1,391	1,391	1,435
15. Painting	1,310	1,268	1,429	1,637	1,538	1,601	1,585	1,584	1,600
16. Fitting	2,289	2,288	2,349	2,696	2,544	2,382	2,522	2,524	2,592
17. Specialties	171	171	171	200	200	179	174	174	182
18. Appliances	102	102	102	123	122	109	107	106	117
19. Plumbing	2,300	2,390	2,275	2,700	2,738	2,483	2,200	2,300	2,250
20. Heating	1,450	1,425	1,600	2,150	2,025	2,025	1,416	1,700	2,150
21. Electrical	1,533	1,600	1,800	2,250	2,050	2,275	2,065	2,200	2,200
22. Site Overhead	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
TOTAL	$38,797	$38,616	$39,829	$47,773	$44,948	$43,876	$40,766	$40,947	$43,546

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

TABLE NA. 1 : Total Building Costs

ITEM	EDMONTON		CALGARY		RED DEER		FORT McMURRAY		GRANDE PRAIRIE		HINTON		LETHBRIDGE		MEDICINE HAT		LLOYD-MINSTER	
ELEMENT	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%	TOTAL $	%
Labour	225,545	34.8	227,234	35.1	236,381	35.5	291,035	37.4	271,867	36.6	269,016	36.8	246,730	36.3	237,975	35.2	264,811	36.2
Material	422,989	65.2	419,901	64.9	429,582	64.5	487,040	62.6	470,777	63.4	462,027	63.2	432,581	63.7	438,220	64.8	465,990	63.8
Total 1986	648,534	100.0	647,135	100.0	665,963	100.0	778,075	100.0	742,644	100.0	731,043	100.0	679,312	100.0	676,195	100.0	730,802	100.0
Cost per m2	$345.88		$345.14		$355.18		$414.97		$396.08		$389.89		$362.30		$360.64		$389.76	
Cost per SF	$32.13		$32.06		$33.00		$38.55		$36.80		$36.22		$33.66		$33.50		$36.21	
Total per Apt. 1986	$27,022		$26,964		$27,748		$32,420		$30,944		$30,460		$28,305		$28,175		$30,450	
Total 1985.$	625,974		617,049		644,466		734,420		695,480		690,526		651,143		655,347		714,537	
Total per Apt. 1985 .$	26,082		25,710		26,853		30,601		28,978		28,772		27,131		27,306		29,772	
Changes From 1985	3.6%		4.9%		3.3%		5.9%		6.8%		5.9%		4.3%		3.2%		2.3%	

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 2 : Comparative Cost Ratios *

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
EDMONTON	1.00	1.00	1.03	1.20	1.15	1.13	1.05	1.04	1.13
CALGARY	1.00	1.00	1.03	1.20	1.15	1.13	1.05	1.04	1.13
RED DEER	0.97	0.97	1.00	1.17	1.12	1.10	1.02	1.02	1.10
FORT McMURRAY	0.83	0.83	0.86	1.00	0.95	0.94	0.87	0.87	0.94
GRANDE PRAIRIE	0.87	0.87	0.90	1.05	1.00	0.98	0.91	0.91	0.98
HINTON	0.89	0.89	0.91	1.06	1.02	1.00	0.93	0.92	1.00
LETHBRIDGE	0.95	0.95	0.98	1.15	1.09	1.08	1.00	1.00	1.08
MEDICINE HAT	0.96	0.96	0.98	1.15	1.10	1.08	1.00	1.00	1.08
LLOYD-MINSTER	0.89	0.89	0.91	1.06	1.02	1.00	0.93	0.93	1.00

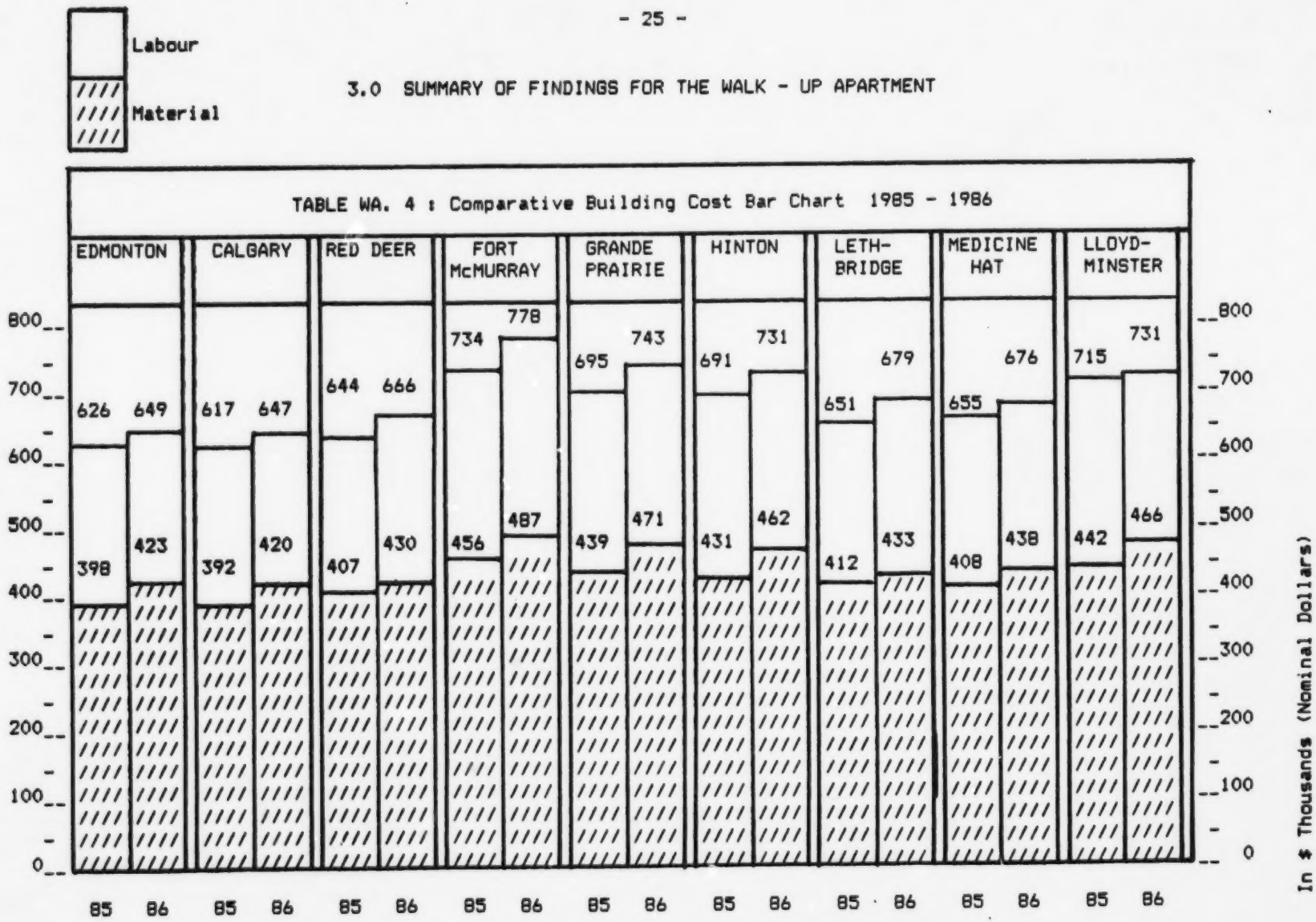
* Entries refer to the ratio of the price for a city in the top row of the table divided by a price for the city listed in the column.For example Red Deer costs are 1.03 times Edmonton costs.

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 3 : Comparative Cost Table 1985 - 1986

LOCATION	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Labour Cost									
1986	$225,545	$227,234	$236,381	$291,035	$271,867	$269,016	$246,730	$237,975	$264,811
1985	$227,892	$225,005	$237,926	$278,792	$256,595	$259,347	$239,414	$246,926	$272,592
Difference	($2,347)	$2,229	($1,545)	$12,243	$15,272	$9,669	$7,316	($8,951)	($7,781)
% Difference	-1.0%	1.0%	-0.6%	4.4%	6.0%	3.7%	3.1%	-3.6%	-2.9%
Mat'l Cost									
1986	$422,989	$419,901	$429,582	$487,040	$470,777	$462,027	$432,581	$438,220	$465,990
1985	$398,082	$392,044	$406,539	$455,628	$438,884	$431,179	$411,729	$408,422	$441,944
Difference	$24,907	$27,857	$23,043	$31,412	$31,893	$30,848	$20,852	$29,798	$24,046
% Difference	6.3%	7.1%	5.7%	6.9%	7.3%	7.2%	5.1%	7.3%	5.4%
Total Cost									
1986	$648,534	$647,135	$665,963	$778,075	$742,644	$731,043	$679,312	$676,195	$730,802
1985	$625,974	$617,049	$644,466	$734,420	$695,480	$690,526	$651,143	$655,347	$714,537
Difference	$22,560	$30,086	$21,497	$43,655	$47,164	$40,517	$28,169	$20,848	$16,265
% Difference	3.6%	4.9%	3.3%	5.9%	6.8%	5.9%	4.3%	3.2%	2.3%

3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT



3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 5 : Comparative Total Building Costs 1980 - 1986 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1980	$709,337	$660,295	$670,183	$685,282	$811,898	$736,435	-	$703,808	$697,459	-
1981	$756,703	$714,492	$719,003	$733,211	$861,728	$784,409	-	$740,084	$743,992	-
1982	$712,232	$665,273	$627,844	$710,485	$805,134	$700,436	$744,686	$720,280	$723,716	-
1983	$644,459	$603,046	$592,174	$623,852	$712,262	$669,574	$674,046	$632,872	$647,845	-
1984	$658,084	$600,039	$591,861	$624,342	$731,995	$694,794	$693,688	$632,121	$652,014	$701,901
1985	$669,882	$625,974	$617,049	$644,466	$734,420	$695,480	$690,526	$651,143	$655,347	$714,537
1986	$699,967	$648,534	$647,135	$665,963	$778,075	$742,644	$731,043	$679,312	$676,195	$730,802

NOTES : * Expressed in nominal dollars
** Hinton was not included in the 1980 and 1981 studies
*** Lloydminster was not included in the 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA. 6 : Comparative Cost per Square Foot of Gross Floor Area 1980 - 1986 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1980	$35.48	$33.04	$33.52	$34.28	$40.61	$36.84	-	$35.20	$34.89	-
1981	$37.86	$35.75	$35.97	$36.68	$43.11	$39.24	-	$37.03	$37.22	-
1982	$35.63	$33.28	$31.41	$35.54	$40.28	$35.04	$37.26	$36.03	$36.21	-
1983	$32.24	$30.17	$29.63	$31.21	$35.63	$33.50	$33.72	$31.66	$32.41	-
1984	$32.92	$30.02	$29.61	$31.23	$36.62	$34.76	$34.70	$31.62	$32.62	$35.11
1985	$33.51	$31.32	$30.87	$32.24	$36.74	$34.79	$34.55	$32.58	$32.79	$35.75
1986	$35.02	$32.44	$32.37	$33.32	$38.93	$37.15	$36.57	$33.98	$33.83	$36.56

NOTES : * Expressed in nominal dollars
** Hinton was not included in the 1980 and 1981 studies
*** Lloydminster was not included in the 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

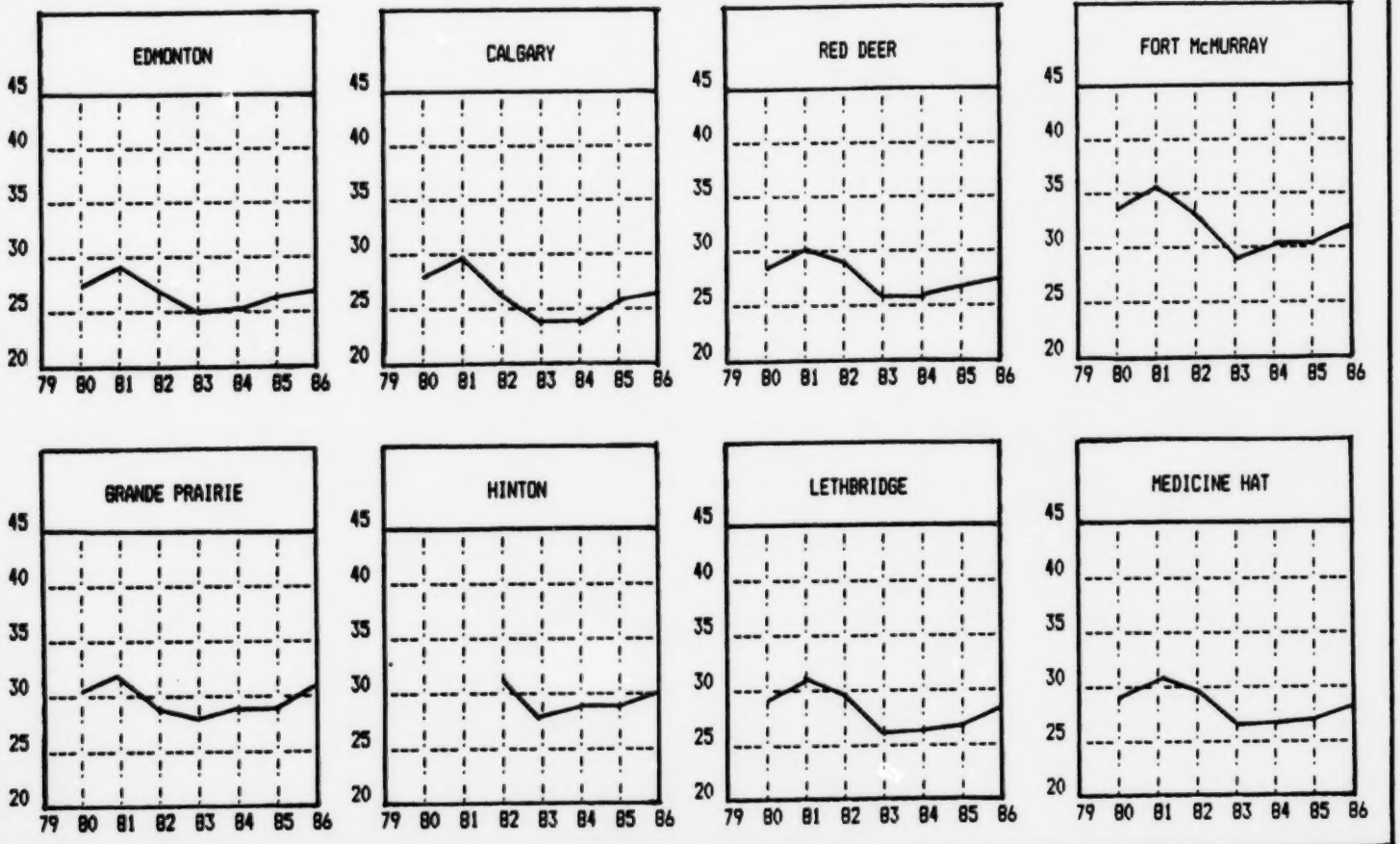
Table WA. 7 : Comparative Cost per Apartment Unit 1980 - 1986 *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1980	$29,555	$27,512	$27,924	$28,553	$33,829	$30,684	-	$29,325	$29,061	-
1981	$31,529	$29,771	$29,958	$30,550	$35,905	$32,684	-	$30,837	$31,000	-
1982	$29,677	$27,720	$26,160	$29,604	$33,547	$29,185	$31,029	$30,012	$30,155	-
1983	$26,853	$25,127	$24,674	$25,994	$29,678	$27,899	$28,085	$26,370	$26,994	-
1984	$27,420	$25,002	$24,661	$26,014	$30,500	$28,950	$28,904	$26,338	$27,167	$29,246
1985	$27,912	$26,082	$25,710	$26,853	$30,601	$28,978	$28,772	$27,131	$27,306	$29,772
1986	$29,165	$27,022	$26,964	$27,748	$32,420	$30,944	$30,460	$28,305	$28,175	$30,450

NOTES : * Expressed in nominal dollars
** Hinton was not included in the 1980 and 1981 studies
*** Lloydminster was not included in the 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT

TABLE MA. 8 : Comparative Apartment Unit Cost Graphs 1980 - 1986



In $ Thousands (Nominal Dollars)

3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

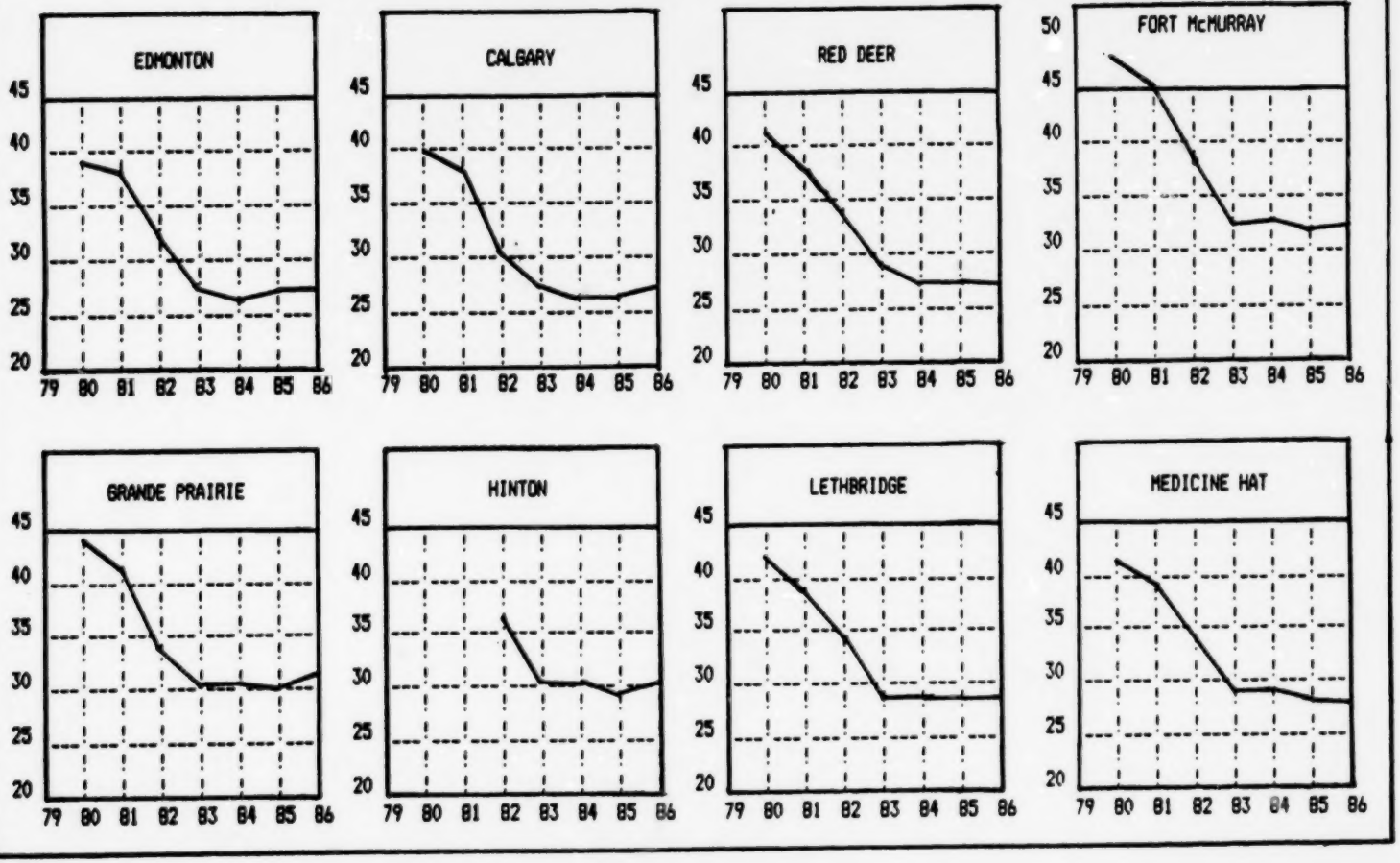
Table WA. 9 : Comparative Cost per Apartment Unit 1980 - 1986, Inflation Adjusted Dollars *

YEAR	AVERAGE	EDMONTON	CALGARY	RED DEER	FORT McMURRAY	GRANDE PRAIRIE	** HINTON	LETHBRIDGE	MEDICINE HAT	*** LLOYD-MINSTER
1980	$42,603	$39,658	$40,252	$41,158	$48,764	$44,230	-	$42,271	$41,891	-
1981	$40,125	$37,888	$38,126	$38,879	$45,694	$41,595	-	$39,244	$39,452	-
1982	$34,200	$31,945	$30,147	$34,116	$38,660	$33,633	$35,758	$34,586	$34,751	-
1983	$29,375	$27,487	$26,991	$28,435	$32,465	$30,519	$30,722	$28,846	$29,529	-
1984	$29,277	$26,695	$26,331	$27,775	$32,565	$30,910	$30,861	$28,121	$29,007	$31,226
1985	$28,988	$27,088	$26,702	$27,888	$31,781	$30,096	$29,881	$28,177	$28,359	$30,920
1986	$29,165	$27,022	$26,964	$27,748	$32,420	$30,944	$30,460	$28,305	$28,175	$30,450

NOTES : * 1. Expressed in 1986 Inflation adjusted dollars
2. Inflation adjustments have been based on the Consumer Price Index for Edmonton as published by Statistics Canada
** Hinton was not included in the 1980 and 1981 studies
*** Lloydminster was not included in 1980 through 1983 studies

3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT

TABLE NA. 10 : Comparative Apartment Unit Cost Graphs 1980 - 1986 -Inflation Adjusted Dollars



In $ Thousands (1986 Inflation Adjusted Dollars)

3.0 SUMMARY OF FINDINGS FOR THE WALK - UP APARTMENT

Table WA.11 : Trade Division Cost Summaries

LOCATION	EDMONTON	CALGARY	RED DEER	FORT MCMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
1. Excavation	2,408	3,377	2,546	3,706	3,209	2,718	3,474	2,927	3,472
2. Concrete	17,152	16,818	17,043	22,504	21,783	21,491	15,908	18,438	18,597
3. Damproofing	662	636	803	1,142	1,079	884	889	788	818
4. Siding	13,258	12,752	13,321	18,072	17,129	17,100	15,465	15,542	17,507
5. Roofing	22,799	23,573	24,127	31,861	25,938	25,232	23,826	23,803	26,686
6. Carpentry - Rough	118,465	118,465	115,847	147,299	133,937	127,514	127,996	113,588	118,954
7. Carpentry - Finish	8,191	8,255	8,214	9,448	8,930	8,481	8,435	8,581	8,687
8. Windows and Glazing	23,784	22,524	25,066	29,479	25,691	25,426	25,462	25,462	25,598
9. Sealants	773	773	773	853	827	806	785	785	808
10. Doors	37,794	35,395	38,084	39,950	41,230	41,027	39,512	37,613	40,894
11. Hardware	3,205	3,205	3,205	3,466	3,459	3,320	3,268	3,261	3,360
12. Ceramic Tiling	4,996	4,859	5,133	6,024	5,887	5,649	5,759	5,896	7,187
SUB - TOTAL	$253,487	$250,632	$254,162	$313,804	$289,099	$279,648	$270,779	$256,684	$272,568

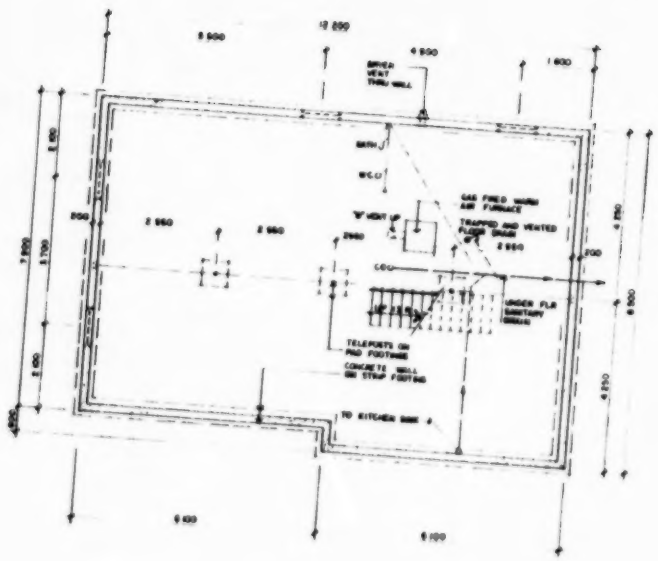
3.0 SUMMARY OF FINDINGS FOR THE WALK-UP APARTMENT

Table WA.11 : Trade Division Cost Summaries (cont'd)

LOCATION	EDMONTON	CALGARY	RED DEER	FORT MCMURRAY	GRANDE PRAIRIE	HINTON	LETHBRIDGE	MEDICINE HAT	LLOYD-MINSTER
Divisions									
13. Wallboard	49,795	49,564	50,175	61,713	55,085	58,715	51,236	52,446	61,929
14. Flooring	42,253	41,493	44,783	50,473	45,916	46,135	44,707	44,740	45,834
15. Painting	18,296	17,627	19,774	22,226	20,795	22,004	21,534	22,183	22,038
16. Fitting	39,473	39,468	39,668	46,366	44,008	40,873	43,602	43,615	44,968
17. Specialties	15,619	15,619	15,619	17,897	17,326	16,707	16,258	16,258	16,780
18. Appliances	28,660	28,660	28,686	30,468	30,392	29,662	29,332	29,308	29,614
19. Plumbing	57,024	56,808	56,496	64,200	67,320	61,320	55,848	57,288	56,112
20. Heating	27,768	28,488	32,064	39,888	38,712	36,600	25,056	28,584	41,208
21. Ventilation	6,864	6,936	6,912	8,640	8,640	8,640	7,968	7,968	8,640
22. Fire Protection	1,968	1,968	1,968	2,496	2,496	2,496	1,968	1,968	2,496
23. Electrical	35,328	37,872	43,656	47,904	50,856	55,608	39,216	43,152	56,616
24. Site Overhead	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000	48,000
Subtotals - 1-24	$624,534	$623,135	$641,963	$754,075	$718,644	$707,043	$655,312	$652,195	$706,802
25. Gnrl. Contr's Ovhd.& Profit	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000	24,000
TOTAL	$648,534	$647,135	$665,963	$778,075	$742,644	$731,043	$679,312	$676,195	$730,802

APPENDIX A

Reduced Drawings: Single-Detached Dwelling



BASEMENT / FOUNDATION PLAN

NOTE: SEE BUILDING SECTIONS FOR NOTES ON CONSTRUCTION ASSEMBLIES AND SIZES

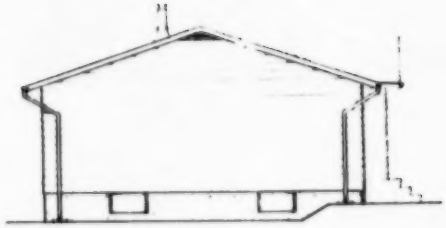
GROUND FLOOR PLAN

● SMOKE ALARM SHALL BE INSTALLED BY A PERMANENT CONNECTION TO AN ELECTRICAL CIRCUIT

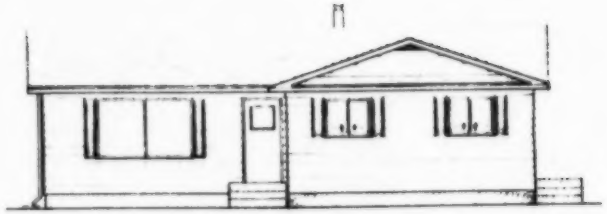
ALBERTA HOUSE COST COMPARISON STUDY

FLOOR PLANS

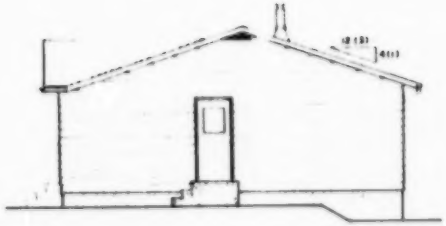
SCALE 1:50



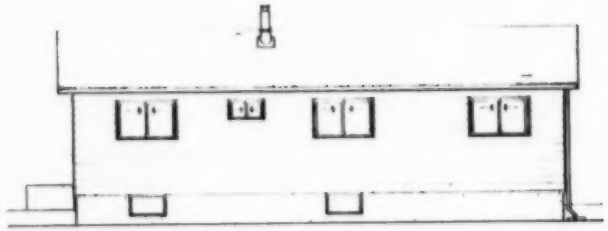
LEFT ELEVATION



FRONT ELEVATION



RIGHT ELEVATION

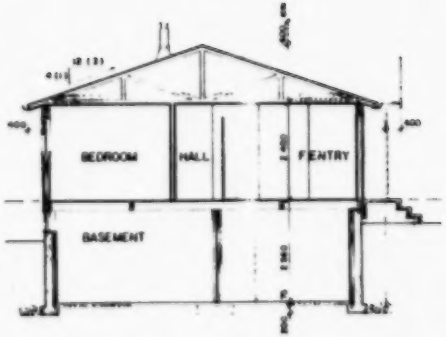


REAR ELEVATION

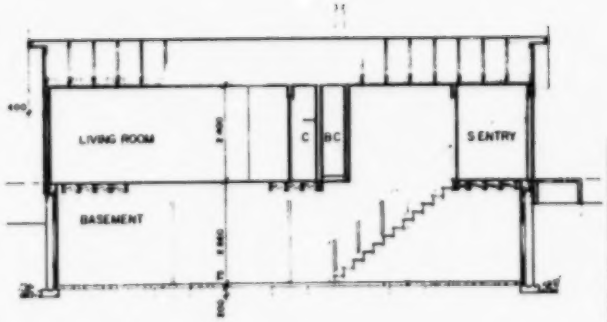
ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50



SECTION A



SECTION B

EXTERIOR WALLS

FINISH

ROOF

BASEMENT WALLS

WALLS

FLOORS

CEILINGS

ROOF

NOTES

1. PROVIDE 100 x 75mm CONCRETE STRAND WALKWAY
2. APPLY FLASHING, TRIM WITH CAP ALL EXPOSED WALL OPENINGS
3. MINIMUM (1) VENT AREA OF NOT LESS THAN 1 SQ. M. INSTALLED CEILING AREA
4. ON GRADE SLABS TO PROVIDE BY EXCAVATING THE TOP 1.0M OF THE FINAL FLOOR SLOPE OR CONCRETE OR FOUNDATION. THE SILL PLATE TO THE FOUNDATION WITH NOT LESS THAN 12.7mm DIAMETER ANCHOR BOLTS SPACED NOT MORE THAN 2.4 M O.C. WITH ONE BOLT NOT LESS THAN 300mm TO THE END AND SO DESIGNED THAT ONLY 50 mm OF THREAD WITHOUT WASHER IS EXPOSED FROM THE FOUNDATION.
5. PROVIDE 50 x 50mm CONCRETE CURB OR 19 x 50MM CURB/GROOVE JOINT AT MID SPAN OR FLOOR JOINT.
6. APPLY 12.7mm PLYWOOD AT REAR DOOR, EXTENDING FROM FLOOR TO 1200mm UP REAR WALL
7. 12mm PLYWOOD WOOD SHEATHING MAY BE USED AS AN ALTERNATIVE TO 12mm PLYWOOD USE WHERE IT WILL TOUCH AND SUPPORTED.
8. CONDENSATION AND INSULATION SHALL BE PROVIDED TO THE REQUIREMENTS OF SUBSECTION 9.25.5 OF THE ALBERTA BUILDING CODE
9. ALL ELECTRICAL INSTALLATIONS SHALL COMPLY WITH SUBSECTION 9.34.2 OF THE ALBERTA BUILDING CODE AND ALL APPLICABLE

BUILDING NOTES

1. ALL SOLID FUELED APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH "THE SOLID FUELED HOT AIR HEATING REGULATIONS PURSUANT TO THE GAS
2. PROVIDE ADEQUATE COMBUSTION AIR FOR SOLID FUELED FURNACE
3. ALL FURNACE SHALL BE CERTIFIED TO CSA IN ACCORDANCE WITH CODE
4. PROVIDE FRESH AIR DUCT FROM OUTDOORS WITH SUITABLY SIZED FRESH AIR DAMPER AND DUCTWORK TO SOLID FUELED AIR DUCT WITHIN 6M OF FURNACE COMBUSTING FAN
5. ALL HEATING EQUIPMENT SHALL BE SIZED TO MAINTAIN A TEMPERATURE OF +22°C INSIDE AT MAIN FLOOR WHEN OUTSIDE TEMPERATURE IS -5°C. THE BASEMENT TEMPERATURE MAY BE HELD AT +18°C

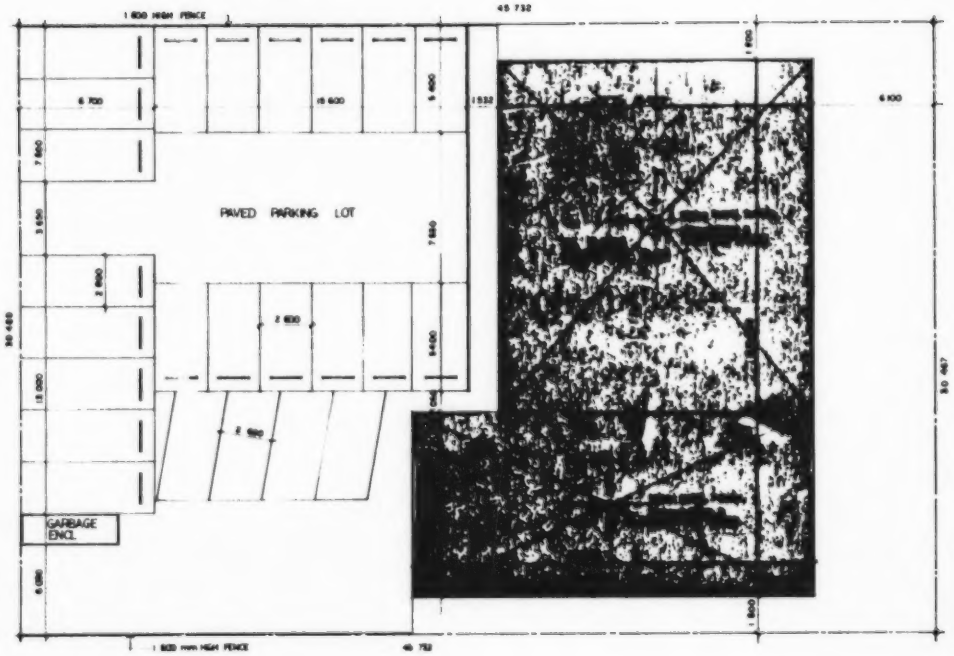
ALBERTA HOUSE COST COMPARISON STUDY

SECTIONS

SCALE 1:50

APPENDIX B

Reduced Drawings: Walk-Up Apartment



STATISTICS

SITE AREA: 1594m²

SUITES: 24 1 BR BEDROOM

BUILDING AREA: 465m²

PARKING: 24 CARS

THE BUILDING IS REQUIRED TO FACE AT LEAST ONE STREET.

ACCESS WALL PANEL, OR WINDOW SHALL BE PROVIDED ON SECOND AND THIRD FLOOR IN AT LEAST 1 WALL FACING ON A STREET.

SPACIAL SEPARATIONS BETWEEN BUILDINGS:

THE MAXIMUM PERCENTAGE OF UNPROTECTED OPENINGS IN AN EXPOSED BUILDING FACE SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN THE ALBERTA BUILDING CODE. (9.10.14.)

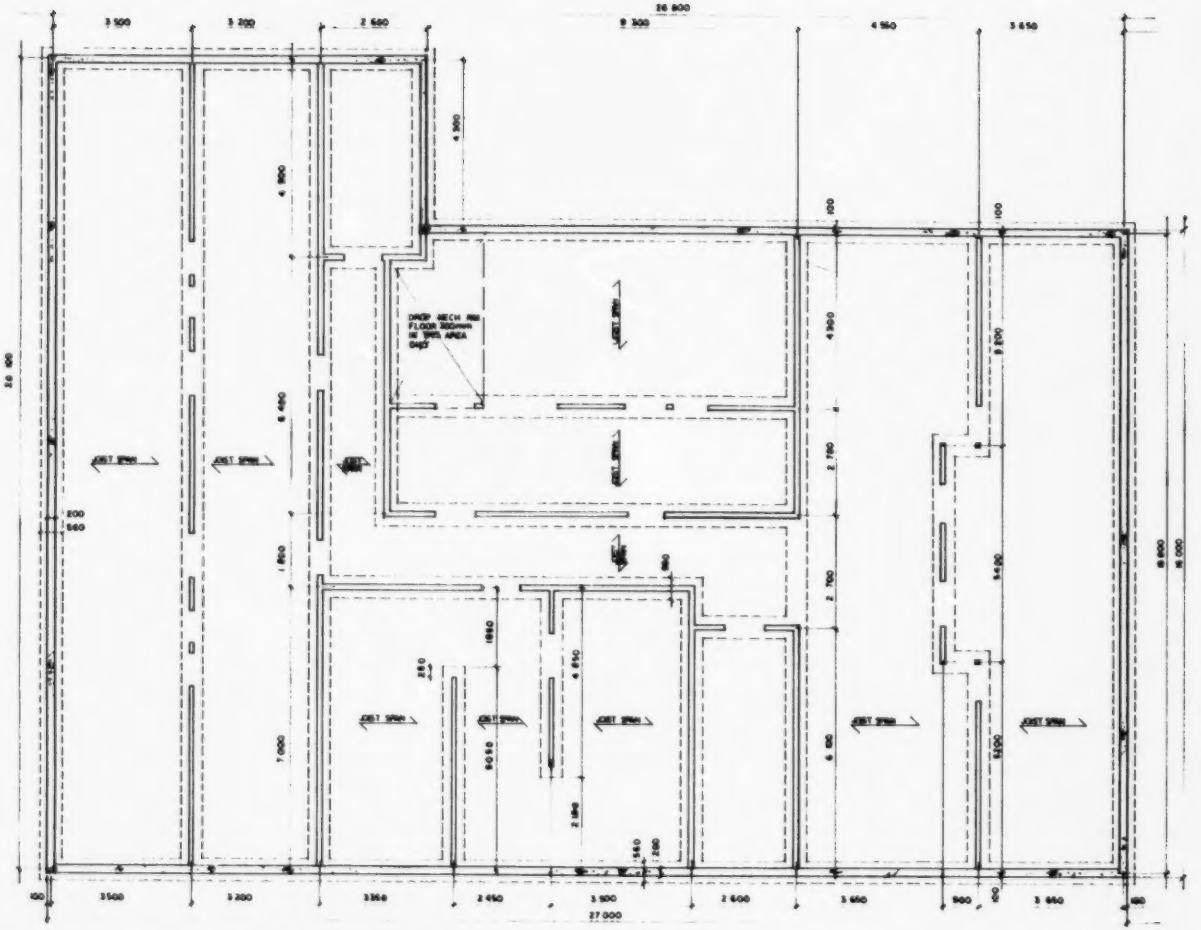
ONE SET OF EXAMINED DRAWINGS SHALL BE AVAILABLE CONTINUOUSLY AT THE CONSTRUCTION SITE DURING WORKING HOURS FOR INSPECTION BY THE AUTHORITY HAVING JURISDICTION.

ALBERTA HOUSE COST COMPARISON STUDY

SITE PLAN

SCALE 1:400

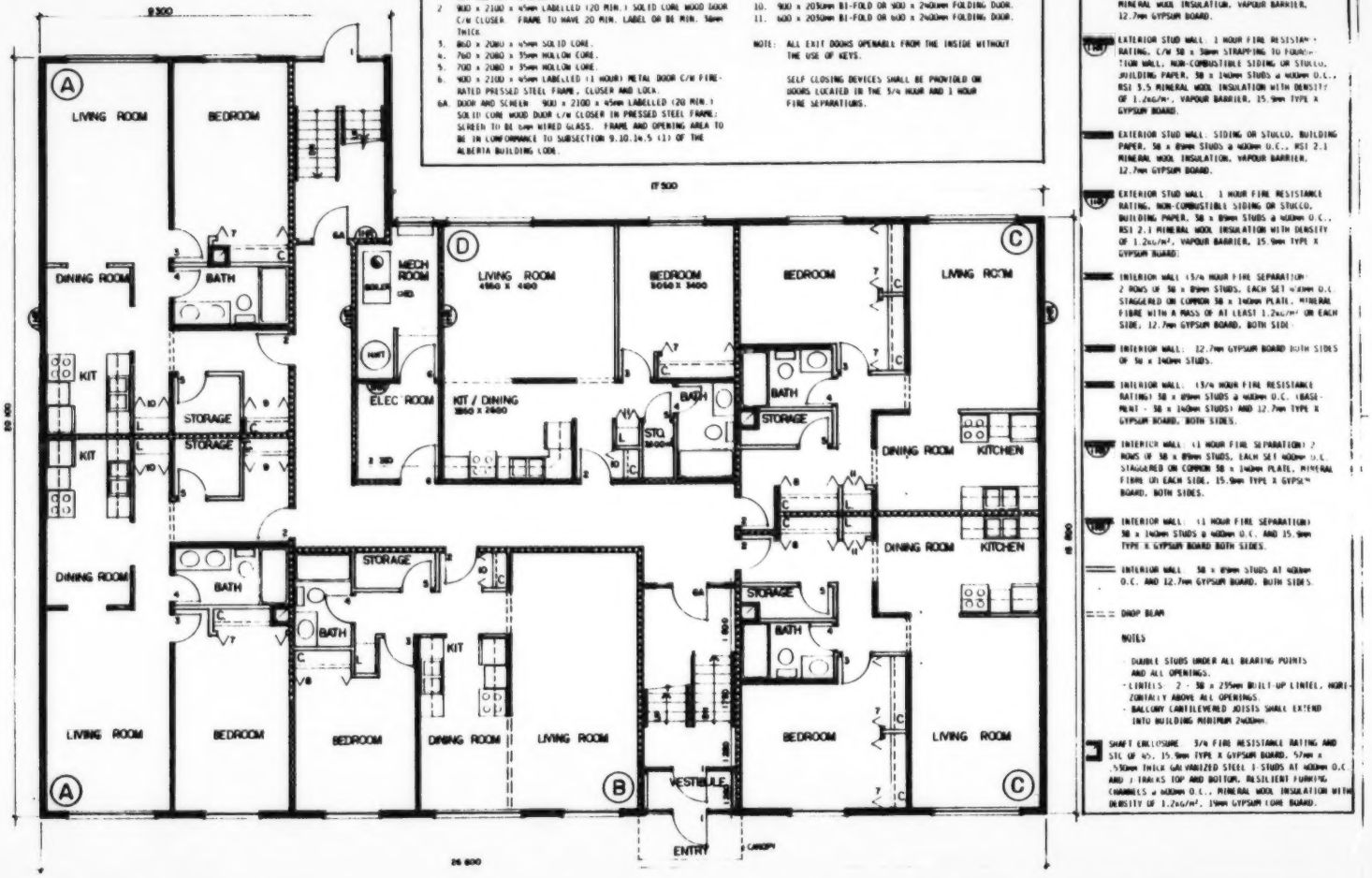
0 1 2 3 4 5 6 7 8 9 10



ALBERTA HOUSE COST COMPARISON STUDY

FOUNDATION PLAN

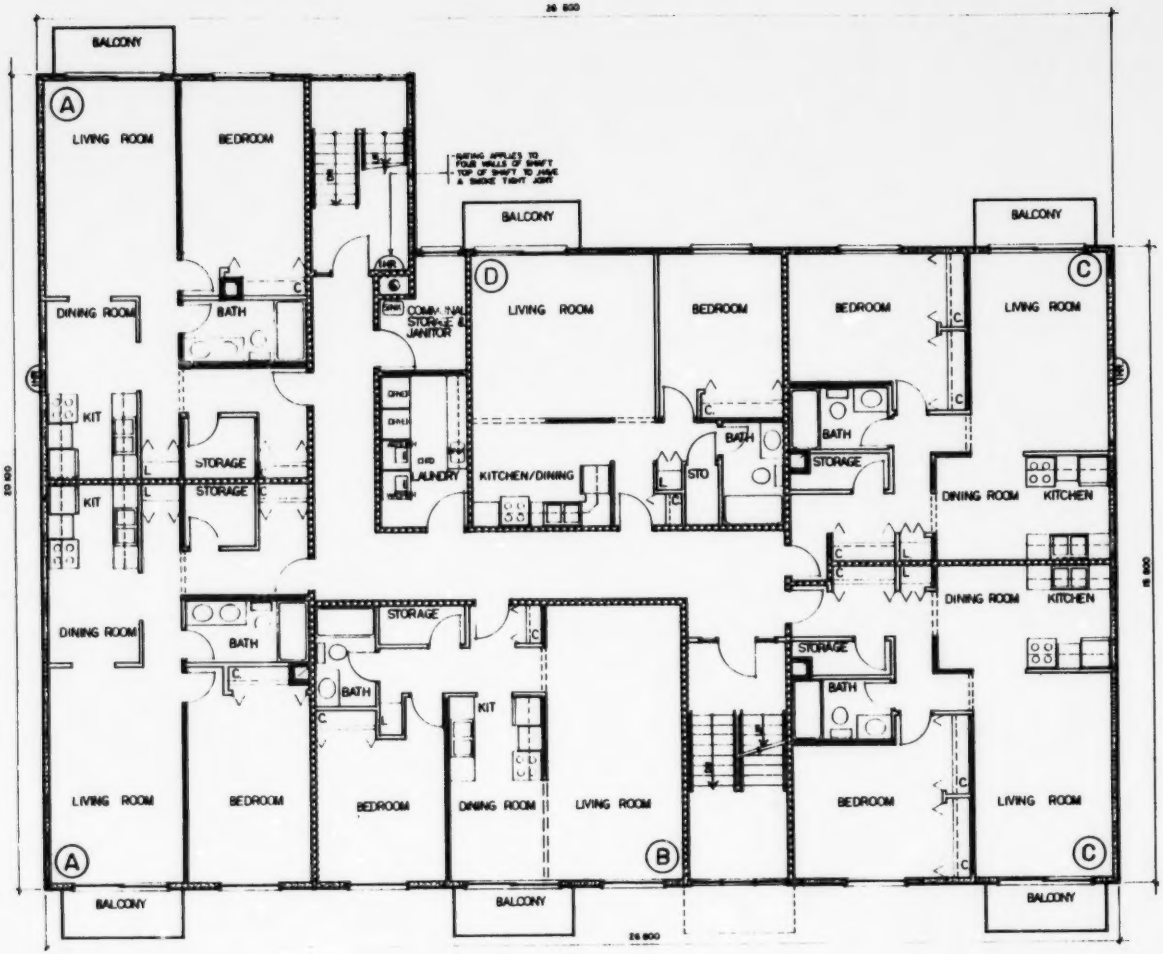
SCALE 1:50


DOOR SCHEDULE
1. 900 x 2100mm ALUMINUM GLAZED DOOR C/W DOOR CLOSER, PUSH AND PULL, LOCK AND THRESHOLD. (NOTE: FROM INSIDE SHOULD NOT USE KEY TO OPEN).
2. 900 x 2100 x 45mm LABELLED (20 MIN.) SOLID CORE WOOD DOOR C/W CLOSER. FRAME TO HAVE 20 MIN. LABEL OR BE MIN. 56mm THICK
3. 860 x 2080 x 45mm SOLID CORE.
4. 760 x 2080 x 35mm HOLLOW CORE.
5. 700 x 2080 x 35mm HOLLOW CORE.
6. 900 x 2100 x 45mm LABELLED (1 HOUR) METAL DOOR C/W FIRE-RATED PRESSED STEEL FRAME, CLOSER AND LOCK.
6A. DOOR AND SCREEN 900 x 2100 x 45mm LABELLED (20 MIN.) SOLID CORE WOOD DOOR C/W CLOSER IN PRESSED STEEL FRAME; SCREEN TO BE 5mm WIRED GLASS. FRAME AND OPERING AREA TO BE IN CONFORMANCE TO SUBSECTION 9.10.14.5 (1) OF THE ALBERTA BUILDING CODE.
7. 1800 x 2080mm BI-FOLD OR 1800 x 2400mm FOLDING DOOR.
8. 1500 x 2080mm BI-FOLD OR 1800 x 2400mm FOLDING DOOR.
9. 1200 x 2080mm BI-FOLD OR 1200 x 2400mm FOLDING DOOR.
10. 900 x 2030mm BI-FOLD OR 900 x 2400mm FOLDING DOOR.
11. 600 x 2030mm BI-FOLD OR 600 x 2400mm FOLDING DOOR.
NOTE: ALL EXIT DOORS OPENABLE FROM THE INSIDE WITHOUT THE USE OF KEYS.
SELF CLOSING DEVICES SHALL BE PROVIDED ON DOORS LOCATED IN THE 3/4 HOUR AND 1 HOUR FIRE SEPARATIONS.
WALL LEGEND
EXTERIOR STUD WALL C/W 38 x 38mm STRAPPING, TO FOUNDATION WALL SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.
1HR EXTERIOR STUD WALL: 1 HOUR FIRE RESISTANCE RATING, C/W 38 x 38mm STRAPPING TO FOUNDATION WALL, NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 140mm STUDS @ 400mm O.C., RSI 3.5 MINERAL WOOL INSULATION WITH DENSITY OF 1.2kG/M³, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.
EXTERIOR STUD WALL: SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION, VAPOUR BARRIER, 12.7mm GYPSUM BOARD.
1HR EXTERIOR STUD WALL: 1 HOUR FIRE RESISTANCE RATING, NON-COMBUSTIBLE SIDING OR STUCCO, BUILDING PAPER, 38 x 89mm STUDS @ 400mm O.C., RSI 2.1 MINERAL WOOL INSULATION WITH DENSITY OF 1.2kG/M³, VAPOUR BARRIER, 15.9mm TYPE X GYPSUM BOARD.
INTERIOR WALL (3/4 HOUR FIRE SEPARATION) 2 ROWS OF 38 x 89mm STUDS, EACH SET @400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE WITH A MASS OF AT LEAST 1.2kG/M² ON EACH SIDE, 12.7mm GYPSUM BOARD, BOTH SIDE
INTERIOR WALL: 12.7mm GYPSUM BOARD BOTH SIDES OF 38 x 140mm STUDS.
INTERIOR WALL (3/4 HOUR FIRE RESISTANCE RATING) 38 x 89mm STUDS @ 400mm O.C. (BASEMENT - 38 x 140mm STUDS) AND 12.7mm TYPE X GYPSUM BOARD, BOTH SIDES.
1HR INTERIOR WALL (1 HOUR FIRE SEPARATION) 2 ROWS OF 38 x 89mm STUDS, EACH SET @400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE ON EACH SIDE, 15.9mm TYPE X GYPSUM BOARD, BOTH SIDES.
1HR INTERIOR WALL (1 HOUR FIRE SEPARATION) 38 x 140mm STUDS @ 400mm O.C. AND 15.9mm TYPE X GYPSUM BOARD BOTH SIDES.
INTERIOR WALL 38 x 89mm STUDS AT 400mm O.C. AND 12.7mm GYPSUM BOARD, BOTH SIDES.
DROP BEAM
NOTES
- DOUBLE STUDS UNDER ALL BEARING POINTS AND ALL OPENINGS.
- LINTELS 2 - 38 x 235mm BUILT-UP LINTEL HORIZONTALLY ABOVE ALL OPENINGS.
- BALCONY CANTILEVERED JOISTS SHALL EXTEND INTO BUILDING MINIMUM 2400mm.
SHAFT ENCLOSURE 3/4 FIRE RESISTANCE RATING AND STC OF 45, 15.9mm TYPE X GYPSUM BOARD, 57mm x 150mm THICK GALVANIZED STEEL I STUDS AT 400mm O.C AND J TRACKS TOP AND BOTTOM, RESILIENT FURRING CHANNELS @ 600mm O.C., MINERAL WOOL INSULATION WITH DENSITY OF 1.2kG/M², 19mm GYPSUM CORE BOARD.
LIVING ROOM
BEDROOM
DINING ROOM
BATH
KIT
KITCHEN
STORAGE
MECH ROOM
BOILER
HWT
ELEC ROOM
KIT / DINING
3350 x 2400
STO
3600
VESTIBULE
ENTRY
CANOPY
A
B
C
D
9300
17500
25600
22900
15800

ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN

SCALE 1:100

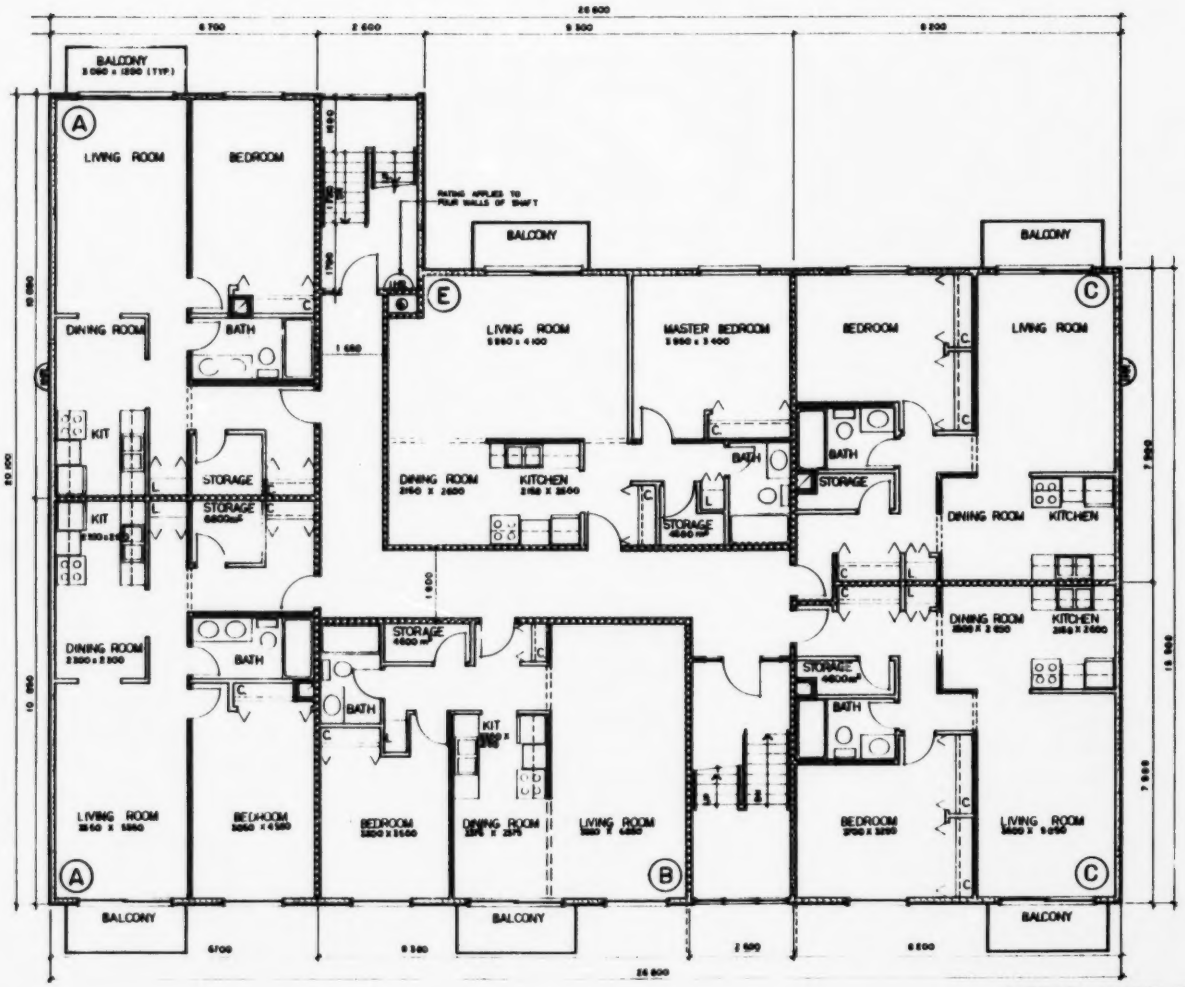


NOTE
SEE BASEMENT FLOOR PLAN
FOR TYPICAL DOOR & BI-FOLD
DOOR TYPES, SIZES & LOCATIONS

ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN

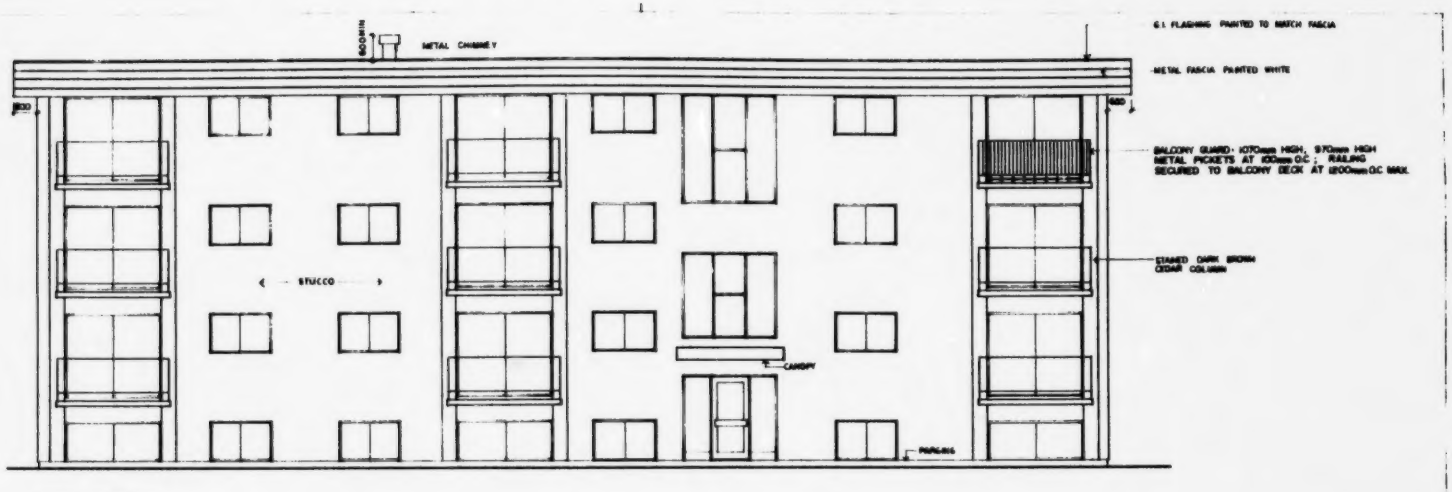
SCALE 1:50



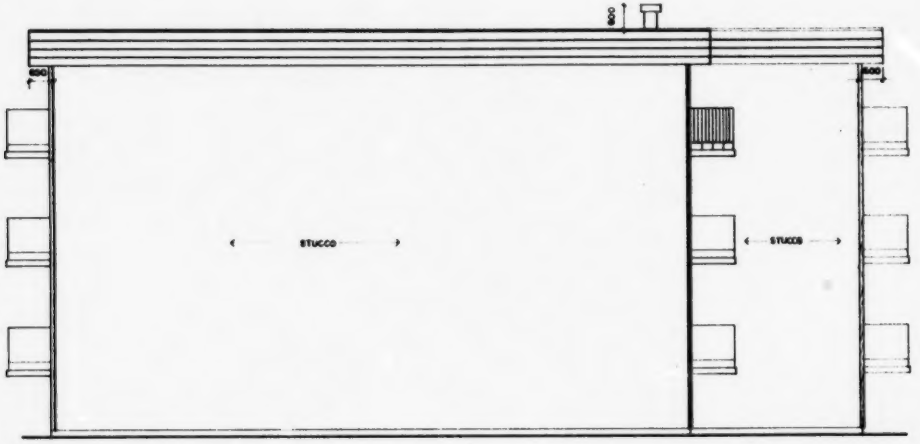
ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN

SCALE 1:50


METAL CHIMNEY
G.I. FLASHING PAINTED TO MATCH FASCIA
METAL FASCIA PAINTED WHITE
BALCONY GUARD - 1070mm HIGH, 970mm HIGH METAL PICKETS AT 100mm O.C. ; RAILING SECURED TO BALCONY DECK AT 1200mm O.C. MAX.
STAINED DARK BROWN CEDAR COLUMN
STUCCO
CANOPY
PARGING

FRONT ELEVATION

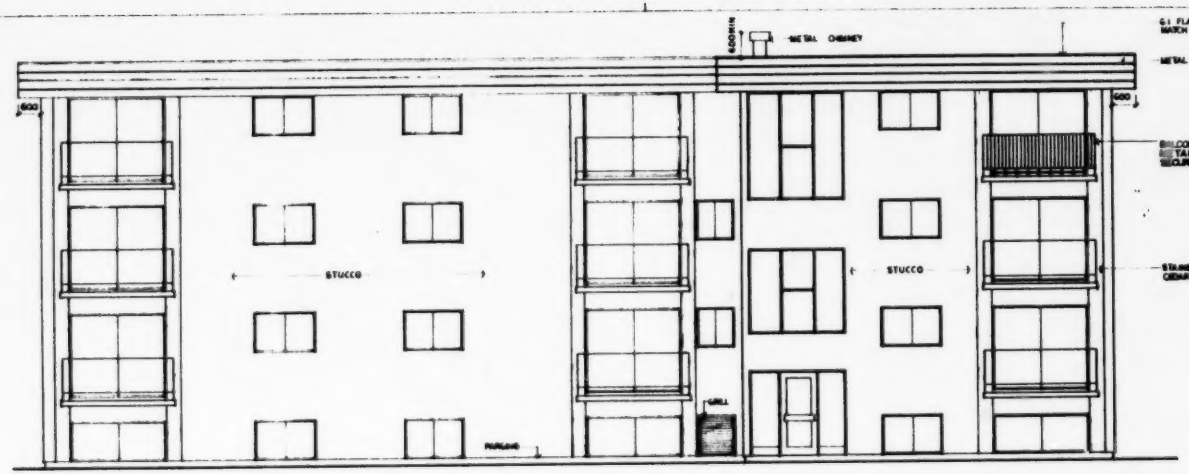


RIGHT ELEVATION

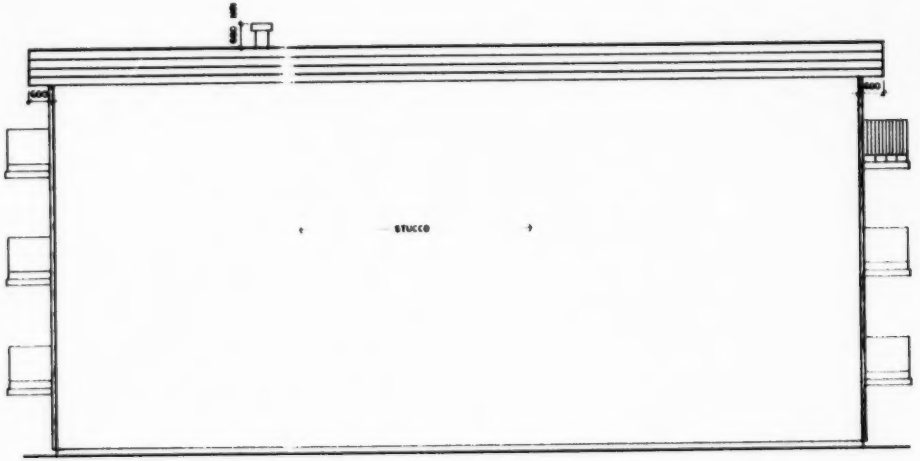
ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50


METAL CHIMNEY
G.I. FLASHING, PAINTED TO MATCH FASCIA
METAL FASCIA PAINTED WHITE
BALCONY GUARD: 1070mm HIGH, 970mm HIGH METAL POSTS AT 1500mm O.C. RAILING SECURED TO BALCONY DECK AT 1200mmO.C. MAX.
STAINED DARK BROWN CEDAR COLUMN
STUCCO
STUCCO
GRILL
PARLIAMENT

REAR ELEVATION



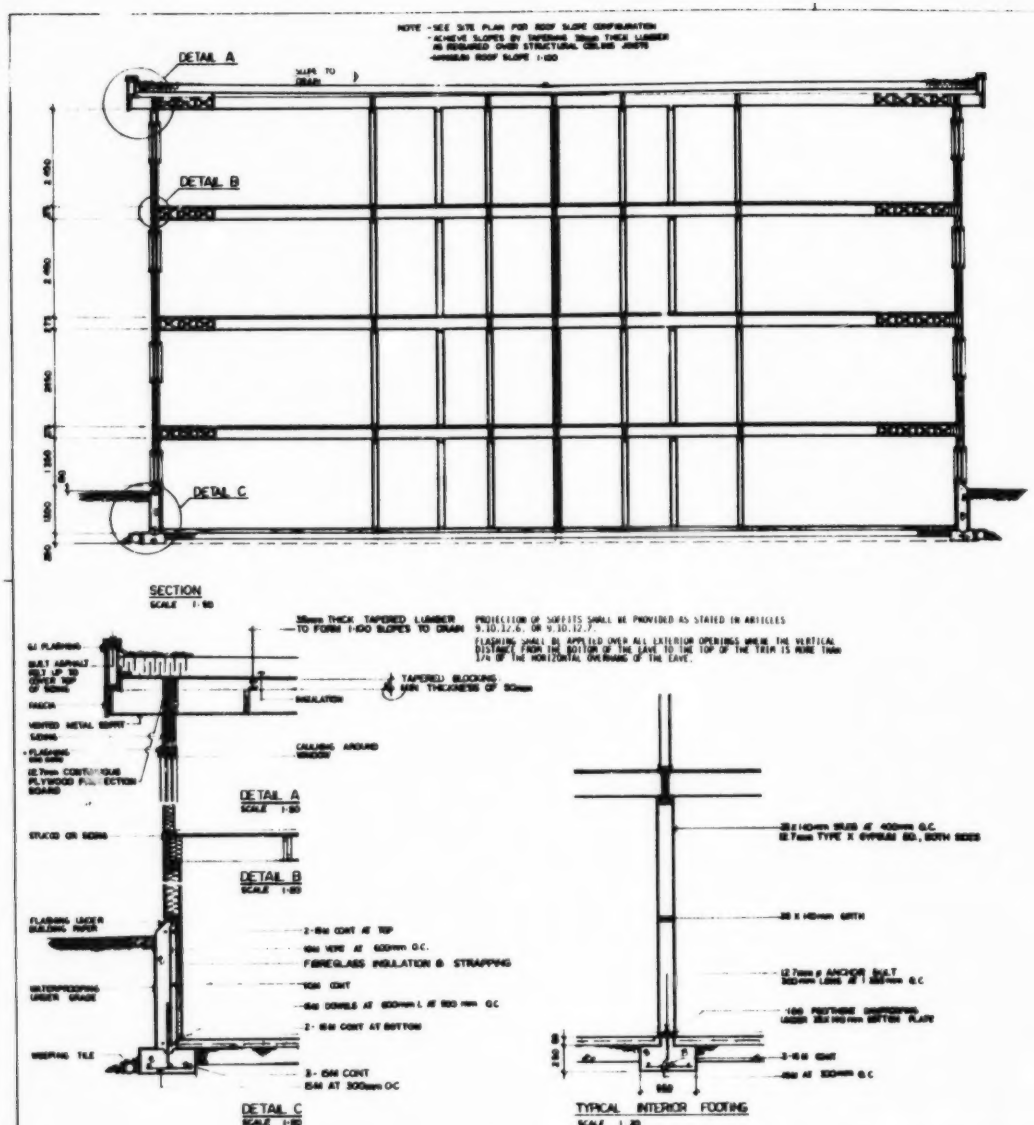
LEFT ELEVATION

DRAWINGS SHALL BE STAMPED AND SEALED BY A PROFESSIONAL ENGINEER OR ARCHITECT REGISTERED IN THE PROVINCE OF ALBERTA.

ALBERTA HOUSE COST COMPARISON STUDY

ELEVATIONS

SCALE 1:50



ROOF CONSTRUCTION - 1 HOUR FIRE RESISTANCE RATING

- ROOFING GRAVEL
- BUILT-UP ROOFING
- RSI 6 RIGID FIBREGLASS INSULATION AND VAPOUR BARRIER
- 10mm PLYWOOD SHEATHING. ALL EDGES SUPPORTED WITH MIN. 38 x 38mm WOOD BLOCKING
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING
- 15.9mm TYPE X GYPSUM BOARD

NOTE
ALTERNATE INSULATION RSI 7 FIBREGLASS BATT INSULATION SET IN JOIST SPACE

EXTERIOR WALL CONSTRUCTION

TYPE A. NO FIRE RESISTANCE RATING

- SIDING OR STUCCO
- BUILDING PAPER
- RSI 2.1 MINERAL WOOL INSULATION AND VAPOUR BARRIER
- 38 x 89mm WOOD STUDS @ 400mm O.C. (38 x 140mm WOOD STUDS @ 400mm O.C. FOR BASEMENT)
- 12.7mm GYPSUM BOARD

TYPE B. 1 HOUR FIRE RESISTANCE RATING

- SAME AS TYPE A EXCEPT MINERAL WOOL INSULATION TO HAVE DENSITY OF 1.2kg/m³; 15.9mm TYPE X GYPSUM BOARD AND STUCCO OR NON-COMBUSTIBLE SIDING

FLOOR CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- FLOOR FINISH
- 6mm PLYWOOD UNDERLAY
- 19mm T & G LUMBER OR 15.9mm PLYWOOD OR WAFERBOARD SUBFLOOR WITH MINERAL FIBRE BETWEEN JOISTS SPACED 400mm O.C.
- 38 x 235mm NO. 1 SPRUCE JOISTS AT 400mm O.C.
- 38 x 38mm CROSS-BRIDGING AT 2.1m O.C. MAX.
- RESILIENT CHANNELS
- 15.9mm TYPE X GYPSUM BOARD TYPICALLY EXCEPT FOR MECHANICAL ROOM CEILING - APPLY 2 LAYERS OF 15.9mm TYPE X GYPSUM BOARD

CORRIDOR AND DEMISING WALL CONSTRUCTION

- 3/4 HOUR FIRE SEPARATION AND S.T.C. RATING OF 45
- TWO ROWS 38 x 89mm STUDS, EACH SET 400mm O.C. STAGGERED ON COMMON 38 x 140mm PLATE, MINERAL FIBRE WITH A MASS OF AT LEAST 1.2kg/m² OR EACH SIDE
- 12.7mm GYPSUM BOARD, BOTH SIDES.

BEARING WALL CONSTRUCTION

- 3/4 HOUR FIRE RESISTANCE RATING
- 38 x 140mm OR 38 x 89mm WOOD STUDS @ 400mm O.C.
- 12.7mm TYPE X GYPSUM WALLBOARD, BOTH SIDES

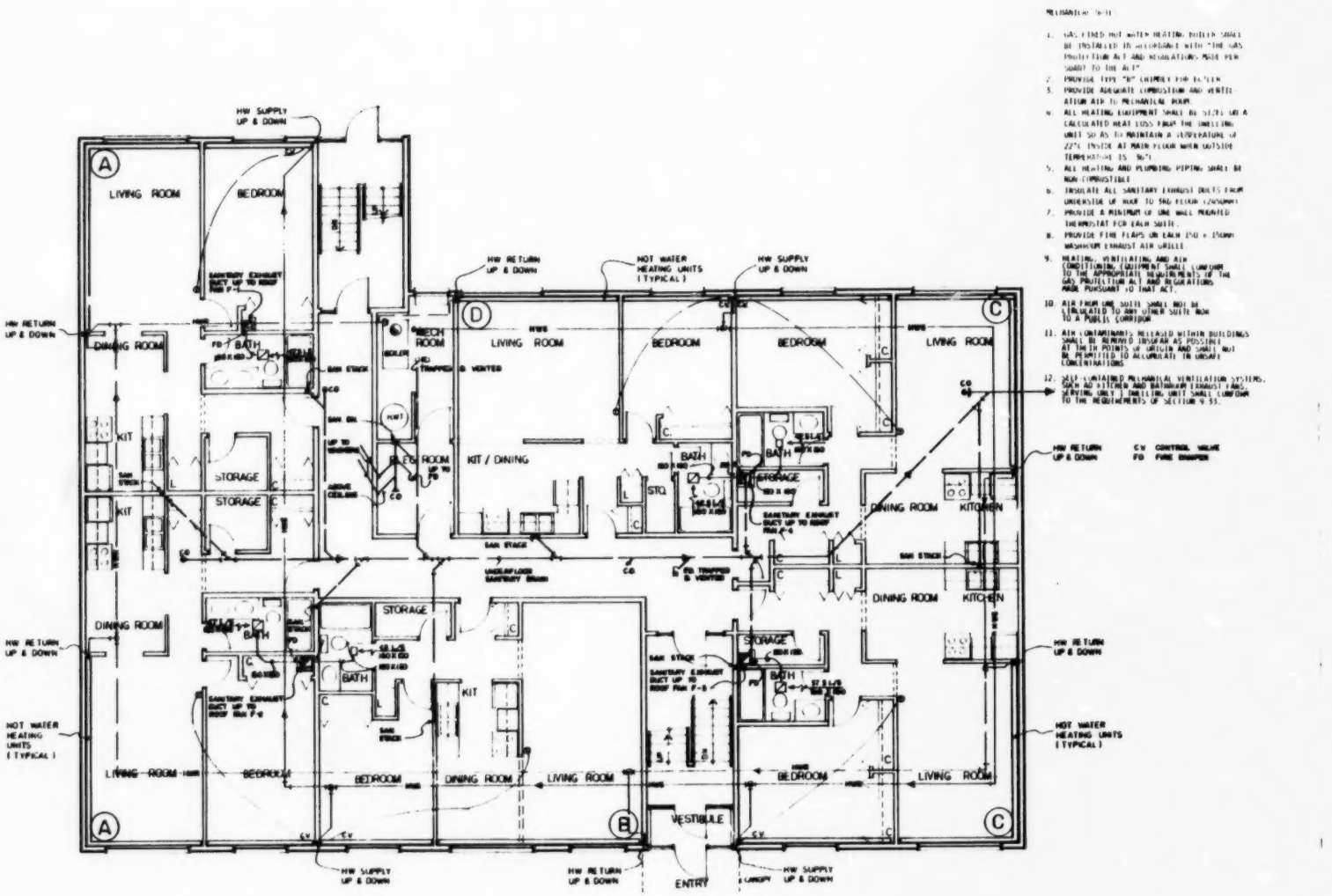
NOTES

1. PROVIDE GALVANIZED STEEL, GA. .457mm AT THE HEAD OF ALL EXTERIOR OPENINGS.
2. WEEPING TILES SHALL BE LAID ON UNDISTURBED OR WELL COMPACTED SOIL SO THAT THE TOP OF THE WEEPING TILE IS BELOW THE UNDERSIDE OF THE FLOOR SLAB.
5. ROOF TRUSSES SHALL BE DESIGNED IN CONFORMANCE WITH PART 4 AND FOR THE APPROPRIATE GROUND SNOW LOADS, STATED IN TABLE [illegible]

ALBERTA HOUSE COST COMPARISON STUDY

SECTION & DETAILS

SCALES : AS SHOWN



REMARKS:

1. GAS FIRED HOT WATER HEATING BOILER SHALL BE INSTALLED IN ACCORDANCE WITH "THE GAS UTILITY ACT AND REGULATIONS MADE PER SAMPT TO THE ACT"
2. PROVIDE TYPE "B" CHIMNEY FOR BOILER
3. PROVIDE ADEQUATE COMBUSTION AND VENTILATION AIR TO MECHANICAL ROOM
4. ALL HEATING EQUIPMENT SHALL BE SIZED ON A CALCULATED HEAT LOSS FOR THE DWELLING UNIT SO AS TO MAINTAIN A TEMPERATURE OF 22°C INSIDE AT MAIN FLOOR WHEN OUTSIDE TEMPERATURE IS -30°C
5. ALL HEATING AND PLUMBING PIPING SHALL BE NON-COMBUSTIBLE
6. INSULATE ALL SANITARY EXHAUST DUCTS FROM UNDERSIDE OF ROOF TO 5RD FLOOR (2400mm)
7. PROVIDE A MINIMUM OF ONE WALL MOUNTED THERMOSTAT FOR EACH SUITE.
8. PROVIDE FIRE FLAPS ON EACH 250 x 150mm WASHROOM EXHAUST AIR GRILLE.
9. HEATING, VENTILATING AND AIR CONDITIONING EQUIPMENT SHALL CONFORM TO THE APPROPRIATE REQUIREMENTS OF THE GAS PROTECTION ACT AND REGULATIONS MADE PURSUANT TO THAT ACT.
10. AIR FROM ONE SUITE SHALL NOT BE CIRCULATED TO ANY OTHER SUITE NOR TO A PUBLIC CORRIDOR
11. AIR CONTAMINANTS RELEASED WITHIN BUILDINGS SHALL BE REMOVED INSOFAR AS POSSIBLE AT THEIR POINTS OF ORIGIN AND SHALL NOT BE PERMITTED TO ACCUMULATE TO UNSAFE CONCENTRATIONS
12. SELF CONTAINED MECHANICAL VENTILATION SYSTEMS, SUCH AS KITCHEN AND BATHROOM EXHAUST FANS SERVING ONLY 1 DWELLING UNIT SHALL CONFORM TO THE REQUIREMENTS OF SECTION 9.33.

ALBERTA HOUSE COST COMPARISON STUDY

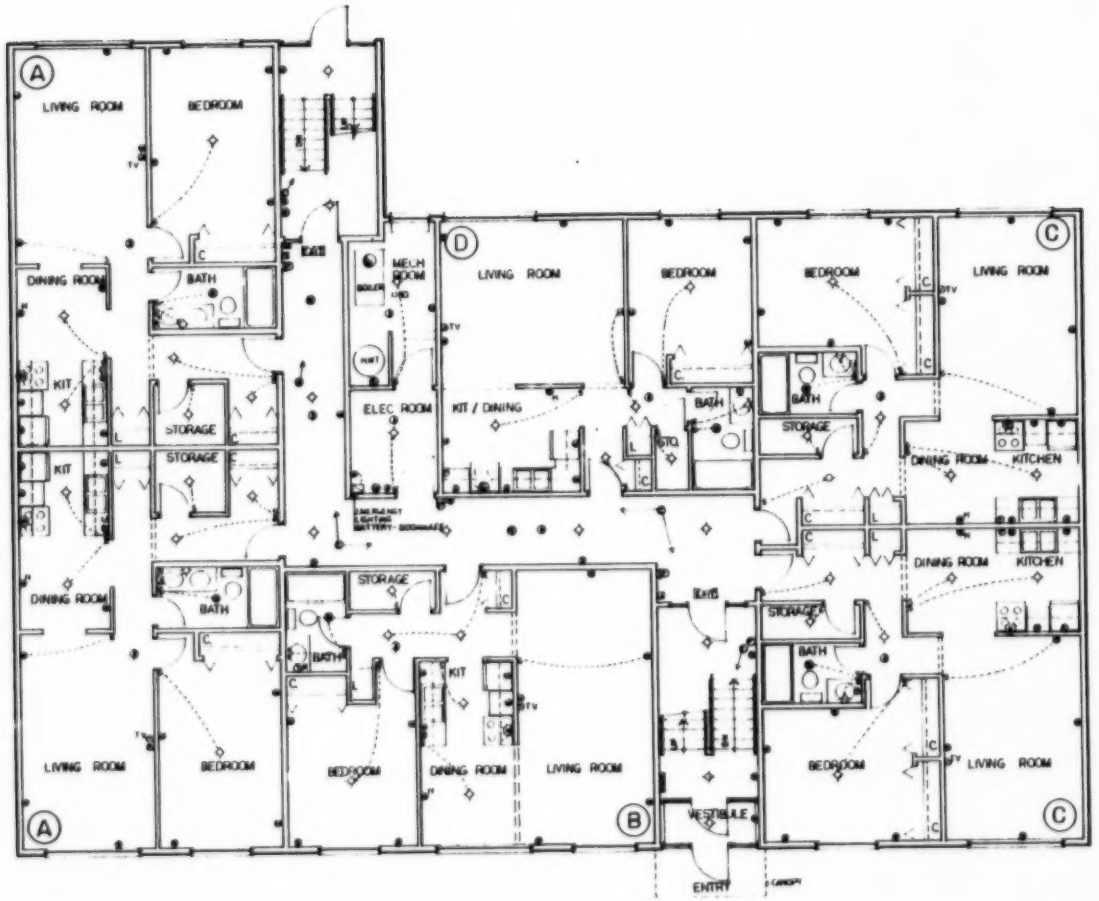
BASEMENT FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50

ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50

ALBERTA HOUSE COST COMPARISON STUDY

2ND. & 3RD FLOOR PLAN
MECHANICAL LAYOUT
SCALE 1:50

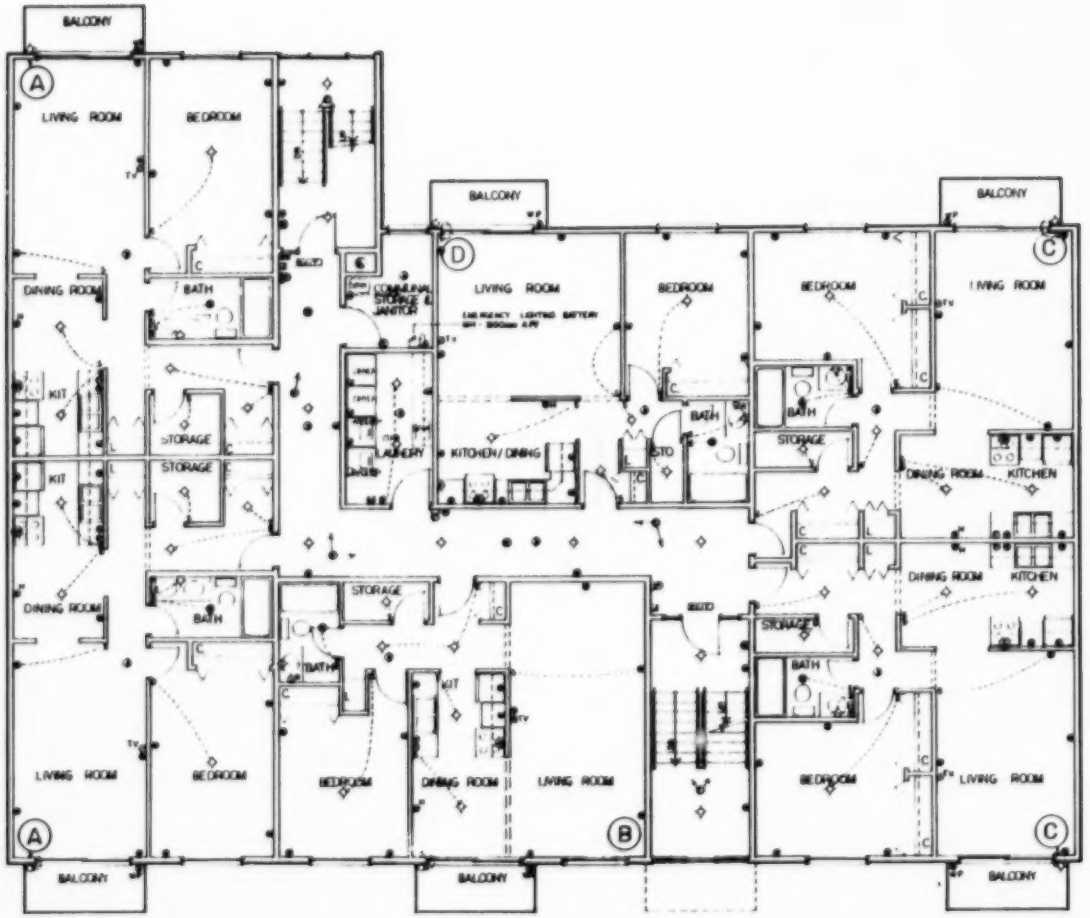


ELECTRICAL LEGEND

- (EXIT) EXIT LIGHTS WITH 2 7/W 12VDC AND 1-12V 15W PREMIERY POWER SUPPLY
- EMERGENCY LIGHTING HEAD, 12V 1/W
- EMERGENCY LIGHTING, 2 HEADS, 12V 1/W
- SMOKE ALARM
- MANUAL FIRE ALARM STATION
- FIRE ALARM BELL, 25mm DIA. METER
- END OF LINE RESISTOR
- MASTER FIRE ALARM PANEL C/W ANNUNCIATOR AND BELL CELL
- BATTERY AND 120V POWER SUPPLY AND AUTOMATIC CHARGER - 1 ZONE PER FLOOR, 2 ZONES - 5 STORYS

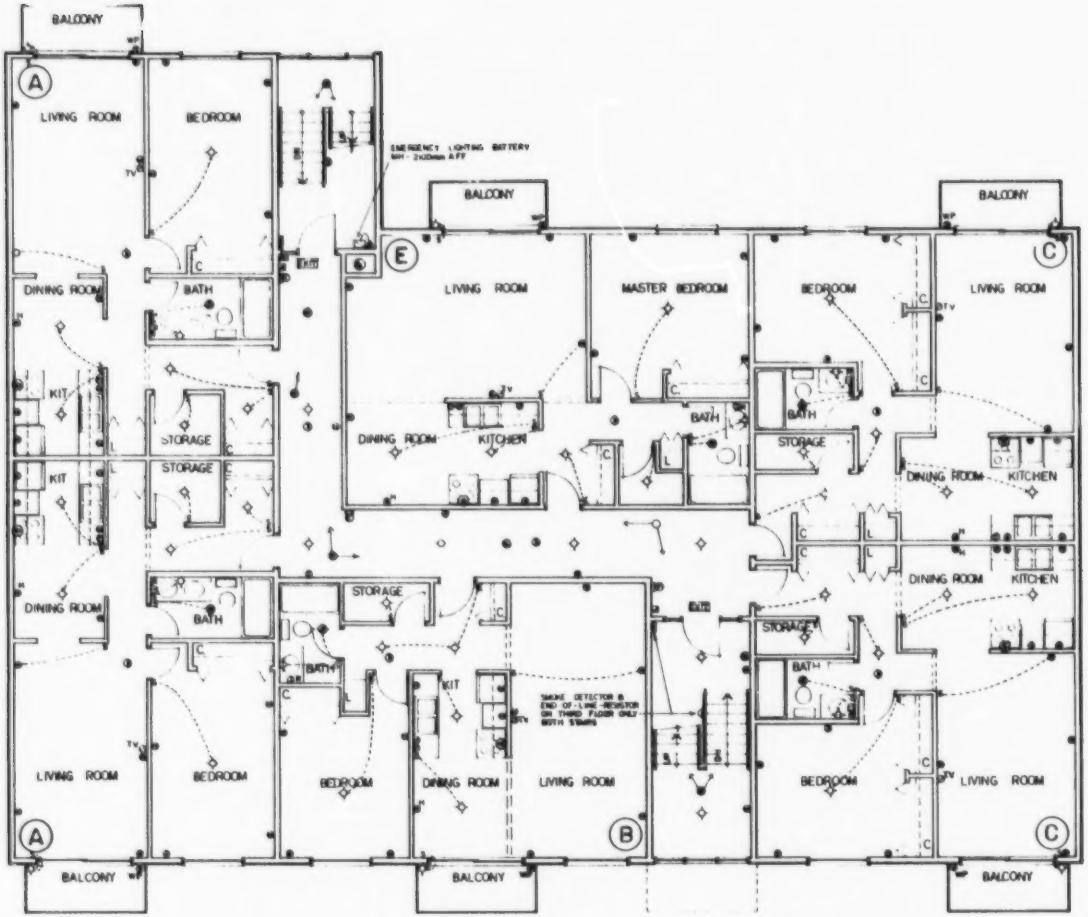
ALBERTA HOUSE COST COMPARISON STUDY

BASEMENT FLOOR PLAN
ELECTRICAL LAYOUT
SCALE 1/8"



ALBERTA HOUSE COST COMPARISON STUDY

MAIN FLOOR PLAN
ELECTRICAL LAYOUT



ALBERTA HOUSE COST COMPARISON STUDY

2ND & 3RD FLOOR PLAN
ELECTRICAL LAYOUT

APPENDIX C

Changes from 1985 Alberta House Cost Comparison Study

SINGLE - DETACHED DWELLING

This appendix notes changes made in the 1986 study as a result of updating plans, non availability of materials or changes in standard materials used by majority of home builders.
This appendix also includes the cost of changes.

NO	TRADE DIV.	Item # No.	Description	Cost of Changes (Edmonton Prices)	
1	Dampproofing	3.10	Increase quantity from 82 m2 to 164 m2, (interior dampproofing added)	Add	$ 41.00
2	Carpentry - Rough	6.10	Built up wood beam 4Nos. in lieu of 3Nos. 38mm x 235mm	Included in 1986 price	$ 0.00
3	Carpentry - Rough	6.10	Added "interior" to stud wall description	No cost effect	$ 0.00
4	Carpentry - Rough	6.30	Decrease quantity from 469 m2 to 381 m2,(underlay quantity decreased)	Deduct	($ 294.00)
5	Windows and Glazing	8.20	Added "basement" to window description	No cost effect	$ 0.00
6	Wallboard	13.00	Rearranged description	No cost effect	$ 0.00
7	Electrical	21.20	Added "connections" in lieu of "power outlets" for TV,phone and razor	No cost effect	$ 0.00
8	Electrical	21.20	3 Nos.smoke detectors wired in, in lieu of battery operated-Difference	Add	$ 90.00
			TOTAL NET CHANGE	D E D U C T	($ 163.00)

Note: # These item numbers refer to the detailed cost estimates in the trade divisions.
See Section 4.0 in the report on the single-detached dwelling.

WALK - UP APARTMENT

This appendix notes changes made in the 1986 study as a result of updating plans, non availability of materials or changes in standard materials used by majority of home builders.
This appendix also includes the cost of changes.

NO	TRADE DIV.	Item # No.	Description	Cost of Changes (Edmonton Prices)	
1	Roofing/Sheet Metal	5.50	Add new item "prefinished flashing over window"	Add	$ 257.00
2	Carpentry - Rough	6.30	Add new item to description,"13mm plywood protection board"	Add	$ 141.00
3	Doors	10.09	Delete 1 No.(20 min label door)	Deduct	($ 204.00)
4	Doors	10.10	Add 1 No.(45 min label door),new item	Add	$ 249.00
5	Hardware	11.50	Add 3 No: door closers (rated)	Add	$ 115.00
6	Wallboard	13.00	Rearranged description	No cost effect	$ 0.00
7	Electrical	23.10	Added "connections" in lieu of "power outlets" for TV,phone and razor	No cost effect	$ 0.00
			TOTAL NET CHANGE	A D D	$ 558.00

Note: * These item numbers refer to the detailed cost estimates in the trade divisions.
See Section 4.0 in the report on the walk-up apartment.